



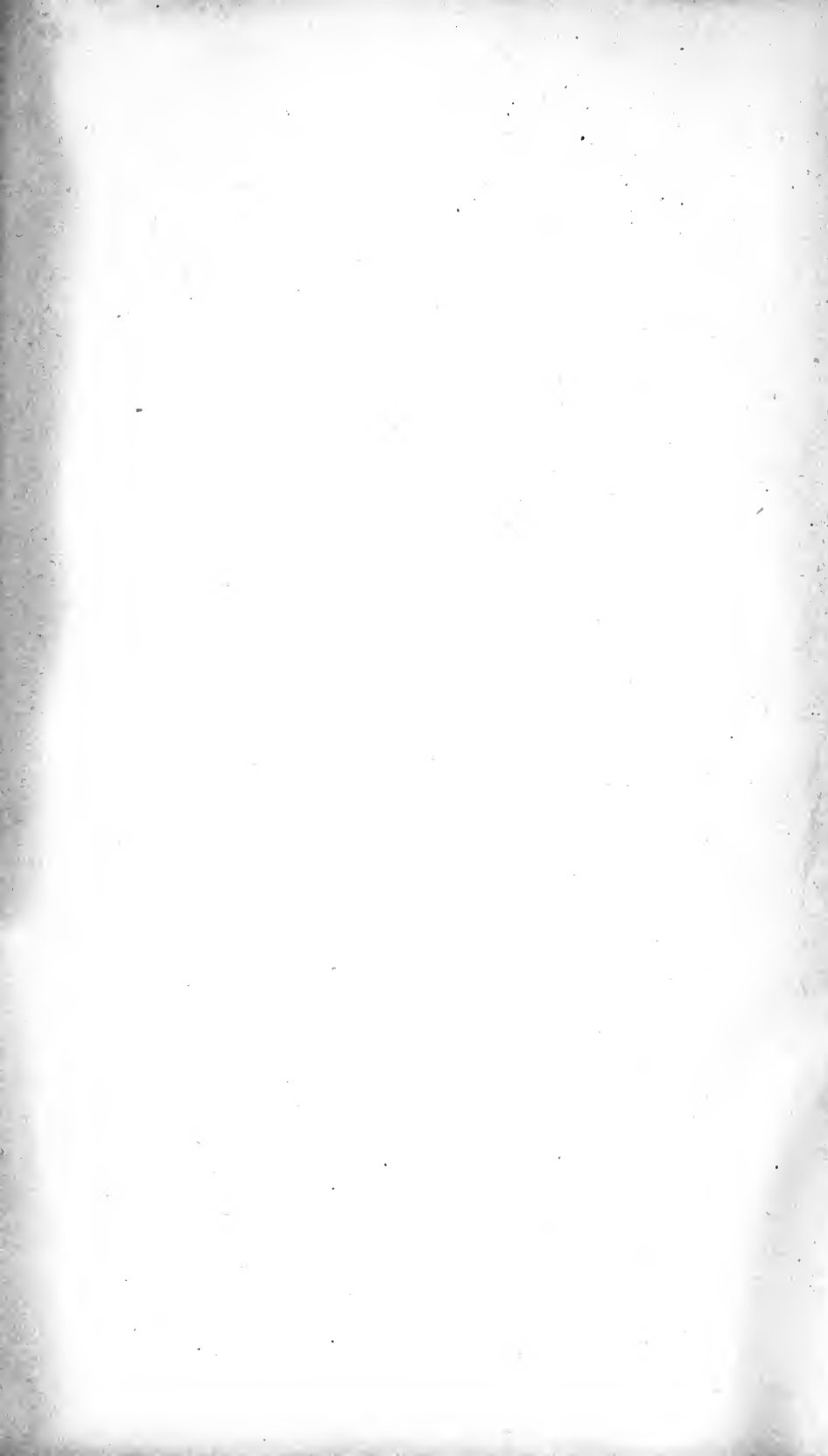
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## LECTURES

ON THE

## THEORY AND PRACTICE OF SURGERY.

BY THE LATE

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## P R E F A C E .

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To the Medical Practitioners of Ireland of the present day, who, with scarcely an exception, have been pupils of the late Professor COLLES, the Publishers feel that it would be superfluous to offer any excuse for presenting them with a faithful transcript of the lessons which they have had the advantage of receiving direct from the lips of that eminent Surgeon. To these gentlemen it can only be necessary to say that the present publication has been compiled from notes of several courses of Mr. COLLES's Lectures, taken and carefully collated with the manuscripts of others of his pupils, by a gentleman whose professional zeal and accurate information are well known to his brethren. The following pages will readily be admitted, by those best capable of forming a judgment on the subject, to contain a true and correct record, not only of the matter of the invaluable Lectures delivered by Mr. COLLES, but of the manner of the Lecturer, and, as such, the Publishers trust their undertaking cannot fail to be acceptable to those who enjoyed the pleasure of his acquaintance, or profited by his instruction, and who will here find an agreeable reminiscence of past times.

There is another class to which the publication of this "Body of Surgery" in a cheap and accessible form, will be productive of an important benefit. The Lectures of Mr. COLLES were eminently practical, and in them the student and young surgeon will find that assistance, in the daily occurrences and difficulties of practice, which they would seek in vain amid the bushels of theoretic chaff, by which the grains of actual knowledge are too often concealed in systematic treatises on surgery. The reader may in-

deed, occasionally, miss an ephemeral theory, or find no mention made of some new-fangled invention of a closet surgeon ; but he will never fail to find plain precepts for his guidance, when doubts arise in his mind as to what he should actually do when he stands by the bedside of a patient, or walks the wards of a hospital. For the elimination of such precepts, and not in the invention of theories or surgical toys, Mr. COLLES employed the resources of his vast experience, and for their record in the following pages, the favour of the medical public is now respectfully, but with confidence, solicited.

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# LECTURES ON SURGERY.

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## LECTURE I.

Inflammation—Kinds and characters of—Causes—Inflammatory fever—Adhesion—Suppuration and Abscess—Treatment.

GENTLEMEN :—Before entering on the consideration of particular surgical diseases, it is necessary to bring before you the subject of inflammation—a condition which attends, and, more or less, modifies them in character and consequences, with which our treatment is materially concerned—which influences many surgical operations, and not unfrequently demands our chiefest attention. There is no subject of medical inquiry that has engaged so much the pen of writers as inflammation, particularly on theoretic questions. A lecture-room would not be the place to discuss those abstract speculations of individuals on points, many of which still remain in obscurity, notwithstanding the labours of some of the most eminent men of our profession for their elucidation. It is not my wish to undervalue even the least productive or satisfactory of these discussions, and, still less, to lead you to think lightly of them ; you must peruse more than one work on the subject—you must study the arguments in your closet—weigh them with each other—and if you do not easily come to a conclusion on the theory, you will at least have acquired a good deal of useful information for practical purposes.

Inflammation will not admit of being defined ; the phenomena, however, which evince its presence have been laid down by old writers in the few words—“ *Rubor et tumor, cum calore et dolore,*” to which little has been added up to the present day. There is a *redness* in the part, no matter how pale the structure may have been in a state of health ; the part becomes *swollen*—there is more *heat* than natural in it—it is *painful*, and its *functions* become *impaired* or *destroyed*. So far is very simple, but when we come to look more into the matter, we find these evidences of its existence greatly diversified by circumstances. There are different *kinds* of inflammation ; hence we employ the terms *phlegmonous*, *erysipelatous*, *gangrenous*, &c., to mark them generally, to which are often added *scrofulous*,

venereal, gouty, cancerous, &c., to indicate specific inflammations, which, while they possess many of the common characters of the simple forms, possess peculiarities sufficiently well marked to place them by themselves. Inflammation may be seen in two states or conditions, indicated by the words *acute* and *chronic*, to the former of which the inflammatory characters mentioned by writers are more particularly applicable. Now, the *redness* of an inflamed part will vary in shade according to the kind of inflammation and constitution of the individual; for example, phlegmon in a strong healthy man will be of a bright red — something of the colour of arterial blood; when unhealthy, it is generally of a darkish hue, inclining to purple; in erysipelas, it will be of a rose colour, with a shade of yellow; in the gangrenous kind, it will incline to a brownish tint; but I think too much stress is laid on those shades, which, although in general correct, will be found by observation to be less certain than some authors would inculcate. In phlegmon the colour ends rather abruptly, in other cases it melts gradually away, so that by it alone you could not well tell, in many instances, how far the disease extended. A diagnosis is improperly based on fancied differences regarding the colour; some tell us that we can distinguish an erysipelatous inflammation at once by pressing the point of the finger on the part, and that if on removing the pressure the part is pale, remains so for an instant, and then gradually resumes its redness, the case is certainly erysipelas; but the fact is, the same thing will occur in other kinds, or even in the healthy redness of the skin; and I may here once for all warn you that you should never trust to any *one* symptom for a diagnosis in almost any local or constitutional disease that you may be called on to treat. The *swelling* of an inflamed part differs very much under different circumstances; it does not depend on the intensity of the inflammation; it is never so great in a dense unyielding part, such as ligament, as it is in the looser structures; it is prominent and even conical in healthy constitutions, where it would be flat and more extended in its outline in a bad one; it is sometimes very firm to the touch, sometimes soft and yielding — sometimes elastic, and sometimes doughy, retaining for a time the impression of the finger. The actual *heat* of an inflamed part is sometimes but little raised above the natural standard, and hardly excites the attention of the patient — at other times it is very distressing and of a sharp burning kind; it does not seem to depend much on the natural sensibility of the part or the strength of the patient. We may pass over many of the explanations offered for those symptoms: you can read them in elementary books on the subject. The redness is no doubt caused by a greater quantity of blood sent to the part than usual, but *how* this local increase of vascularity is accomplished, is far from being accounted for with any degree of certainty. That the arteries perform an active part in it, may, I think, be inferred from their stronger pulsation in, and near the seat of the affection, than in their natural state: if a man has a whitlow, the radial artery, and sometimes even the brachial of that side, will

obviously beat much stronger than in the other arm. That the vessels supplying an inflamed part are enlarged, is seen in this preparation — it is the head of a rabbit ; during the animal's life inflammation was excited in one of its ears, and when it was at its height the rabbit was killed, the head injected, and you perceive that the inflamed ear has dried, thicker, and more opaque, and that its vessels are larger and in greater number than in its fellow of the opposite side that had not inflamed. You can well observe the truth of this also during inflammation of the conjunctiva, and some other particulars, on account of the transparency of that membrane. Besides the accumulation of blood, the swelling is caused by effusion of serum into the interstices of the cellular membrane ; and in this case the swelling pits ; sometimes coagulable lymph is effused, and then the swelling is hard, but does not pit. It is said the *pain* is caused by pressure on the nerves of the part ; but I think this is not the case, for the most intense pain is often felt in parts in which there are naturally very few nerves distributed, such as bone, tendon, serous membrane, &c. Munro says the pain arises from an increased sensibility in the part, owing to its greater vascularity, but this is disproved by the fact that the peculiar sensibility of certain parts, as the pituitary membrane of the nose, is diminished in inflammation : it would seem that the pain is caused by some *change* in the nerves not yet understood.

The *causes* of inflammation may be divided into *predisposing* and *exciting*. There is a great difference in the predisposition of different people to inflammation ; you will observe this even in particular families, as well as individuals ; besides peculiar idiosyncrasies, there are several other circumstances to render one man more liable than another ; people living in cities will in general differ in this respect from country people ; habits of living and kinds of occupation have likewise their effect in predisposing to inflammation under the same exciting cause.

Local inflammations are always more or less liable to produce a disturbance of the system which is called *fever*, and this fever assumes characters peculiar to the kind of inflammation which excites it ; in their general symptoms surgical fevers resemble certain medical fevers, but they have always peculiarities of their own sufficiently well marked. We have fevers in surgery of the continued, remittent, and intermittent types, but, when considering the particular cases in which one or other of those kinds is met, we shall find there are essential points of difference between them, and a corresponding one in a purely medical fever. At present, I shall confine myself to a few remarks on inflammatory, or as it is sometimes called, symptomatic or sympathetic fever. It is ushered in with a rigor — this is succeeded by a general sensation of heat, and this again by sweating ; there is headache, thirst, constipation, and a full pulse. While the fever lasts all the secretions, morbid as well as natural, are diminished ; if a patient has a gonorrhœa or gleet, or a running sore on his leg, or an issue in his arm, they will all dry up on the accession

of inflammatory fever, from any cause ; the thirst, diminished secretion of urine, and of the mucous membrane of the bowels, the dry tongue, &c., may all be explained by this one fact. This is the sort of fever met in phlegmonous inflammation in a healthy constitution, and our treatment will be directed simultaneously to it and to the local affection. Now, the occurrence of this fever, and its severity depend very much on the constitution of the patient, although it is necessarily dependent on inflammation as an exciting cause ; yet the presence of this cause does not always call it into action, as in slight and trivial cases, in a person of good habit. When the local inflammation is reduced, the fever will subside, and its departure is often marked by what is called a critical symptom, such as sweating, or diarrhœa, &c., leaving no trace behind except a little debility. But this is not always so, for the inflammatory fever sometimes gives place to, or merges into, a fever of another kind, apparently owing to a new turn in the inflammation itself ; these changes in the local disease are called — perhaps rather loosely — *terminations of inflammation*. The most favourable and common termination of inflammation is by what is called *resolution* — that is, where on its departure it leaves the part just as it was before it was attacked. But it may end in *suppuration*, or by *adhesion* or *gangrene*. Each of these will be considered in its proper place ; at present, we have only to deal with the treatment, with a view to resolution. The local applications are either cold or warm ; cold water or medicated lotions are often extremely useful, particularly when there is a sensation of burning heat in the inflamed part, but their long continuance, where the inflammation is very high, is not free from danger ; mortification has often been brought on by reducing its temperature too much, or too quickly, particularly in delicate constitutions ; this caution is necessary to be remembered, as we have sometimes other objects in view in applying cold over an inflamed surface, as in strangulated hernia, besides the mere service it may render the inflammation ; we must, therefore, watch carefully that our cooling process is not carried on too long. Objections have been started to applying cold to an inflamed part in the immediate neighbourhood of the great cavities, in the apprehension of repelling the inflammation to the interior. I think the fear is perfectly groundless : I have never seen a case which bore out such a conclusion, and if cold lotions were desirable, I should have as little objections to applying them over the thorax or abdomen as any where else.

But cold does not agree in every case of local inflammation ; sometimes you must apply warmth, and the best criterion — perhaps the only one — by which you are to judge, which is best in any particular instance, is that which the patient feels most agreeable to his sensations. You will be hardly ever wrong when it soothes the part, because this soothing is the very thing we aim at, knowing it is one of our best means to lower the inflammation. Now, warm stupes will often be found to lessen the pain and feeling of tension better than cold, and particularly where the feeling of tension is very strong,

and they should be used notwithstanding the objection that they bring more blood to the part; a better objection to them is the slopping and wetting the bed-clothes, teasing an irritable patient and exposing him to cold from their damp. If you use them you will find that in different cases they must be of different degrees of heat; for instance, you can hardly make them hot enough for the comfort of the patient when matter is making its way through tendinous structures. Various medicinal plants are boiled or macerated in the water of stupes, but I doubt that they are of any use; I am not, however, certain; if any of them do service, it is chamomile, which, I think, I have seen somewhat useful. Poultices are likewise used with nearly the same object as stupes, and, like them, it little matters of what ingredient you make them, provided they are calculated to keep their moisture long. It is absurd to expect a poultice will retain a heat greater than that of the part on which it is put for any length of time; where that is wished for, stuping will be better. Were it not for their weight and the difficulty, in some situations, of keeping them exactly on the part you desire, poultices would be often found very useful, but their only purpose, on a simply inflamed surface, is to keep it soft and moist, and to maintain an equal temperature; if they be applied too hot they will irritate, and continue to do so until they cool down to the natural heat of the skin. Linseed meal worked up in hot water to the proper consistence is very light, and keeps its moisture longer than any other I know of; bread and milk is apt to get dry and hard, and if kept on in this state often does a great deal of harm. Local bleeding is among the means we employ to subdue inflammation; for this purpose scarifications, cupping, and leeches are not to be used indiscriminately. To cup and scarify an inflamed part is just adding fuel to fire: leeches alone should be used, and even those put to a highly inflamed part may add to the inflammation already existing, or produce erysipelas. Another objection to leeches is that it is sometimes extremely difficult to stop the bleeding when enough of blood has been taken away, and this notwithstanding everything that you may try for the purpose. This, in an adult, is not of much consequence generally, but I have known more than one child to die of the continuance of the bleeding from leech-bites. You must never forget what a very small quantity of blood an infant can bear to lose without danger, and if a leech or two must be applied to one of them, it should be carefully watched, for the child will fall asleep, and from want of proper caution, may continue to bleed until it is too late to redeem the negligence. Above all things, guard against the use of the Swedish leech, the bite of which will never be obliterated. You should not apply leeches near to each other, for if one bite should ulcerate, it will extend to the neighbouring bites, they will run into each other, and sometimes be followed by very unpleasant consequences. On the whole, I do not think leeches by any means so useful as they are represented, except sometimes over inflamed glands, and perhaps in ophthalmia. I need say little of blisters, as no one would be mad enough to put a

blister on an inflamed part; after other means have been premised, a blister at some distance will occasionally be very useful, such as to the nape of the neck, or behind the ears, in inflamed eyes. Now, in these cases they do not produce their good effect from the quantity of serum they make to be thrown out, but from counter-irritation, or a kind of sympathy between the two parts. Blisters are serviceable in removing the sequelæ of inflammation, such as the induration that sometimes remains, but on no account are they to be put on, or very near a part in a state of active, acute inflammation.

When inflammation is attended with a high degree of fever, mere local treatment can avail but little, except perhaps in children, where the blood drawn by a few leeches will make a serious impression; therefore our attacks must be made on the system generally—it is often the only thing we have to attend to. The first thing to be done is to take blood from some of the large superficial veins, as those of the arm, and in such a case as we suppose, the quantity to be taken away is not more important than the manner of detracting it, nor of so much. You may take, say, from sixteen to twenty-four ounces at once, but to obtain the full effect from it, it must be taken from a large orifice, and until it causes fainting. Your great object is to make an impression on the system, and if you succeed in this, you may not have any need to repeat the bleeding; recollect that by taking away the blood suddenly, and making the patient sit up in bed while bleeding him, so as to make him faint, you *save* blood, and consequently the patient's strength. Ten ounces drawn properly may have more real effect on the disease than five times the quantity without such precaution, and an actual saving of blood in some of these cases is very important. But take care that you do not mistake the cause of fainting—it must not be from the sight of the lancet: it must be from the detraction of blood and not from the patient's timidity. Many of those things which would be of use in inflammation will do more harm than good if given in the height of the fever attending it. In speaking of stupes and poultices, I mentioned that their use was to allay pain. Now, opium is given for the same purpose, but it will produce no beneficial result, if given in the height of the fever, but will frequently act the very contrary way. In certain cases of acute inflammation, mercury is a very powerful remedy, but it will do no good but harm if exhibited before bleeding and other means be employed to reduce the fever; the good effects of mercury only become apparent when the mouth is touched, and this can hardly be achieved when high inflammatory fever is present. The continuance of the symptoms indicate a repetition of the depletion; now, the blood first drawn, when left at rest for a few hours, exhibits on its surface what is called the *buffy coat*—if it is hollowed at top, and if, when you push your finger into the clot, it feels firm, you are told you may repeat the bleeding with advantage, and so in general you may; but this appearance of the blood must not be *entirely* relied on, as it does not entirely depend on the condition of the fever; for it is seen well marked in cases where there is no fever

whatever existing, as in pregnant women, and in other cases where copious bleeding would be very unnecessary, and often injurious; if the coagulum is soft, you will hesitate to bleed your patient again, but if the buff has a tinge of green in it, do not on any account repeat your bleeding. In many cases the pulse is not to be trusted as to the necessity for venesection. In old people, for example, the arteries will often pulsate so as to resemble perfectly a pulse that would require large bleeding, so will those of a person long labouring under dropsy, &c. In other cases you will find the pulse in such a miserably small, weak, compressible state, that notwithstanding there may be infallible symptoms of high acute inflammation present, you would be almost afraid, if you relied too much on the pulse, to use the lancet; yet you will find, in many such cases, that after taking away some blood, while the blood is flowing even, the pulse will rise to the full hard condition that you would expect in ordinary cases.\* Purgatives are of great use in the treatment of inflammation, but they should not be of the heating kind; the saline purgatives are the best, with perhaps a pill of calomel given one, two, or three hours before the salts. Purgatives chiefly act in reducing inflammation by causing a large discharge of watery fluid from the mucous membrane of the intestines; by increasing the secretion of one part the inflammation is drawn off from another. When the skin is very hot and dry, sudorifics might be given, but not until bleeding and purging have been practised. Emetics are seldom required in surgical diseases, but in medical cases it is different; in croup and the exanthematous diseases, for instance, they are of the greatest use. I know of no surgical case where they are of much use except hernia humoralis. Keeping up a high temperature in the patient's room, or loading him with bed-clothes, will increase the fever; you must, therefore, keep him cool, and as quiet as possible.

As the fever attending inflammation may be of any shade or degree, from the highest inflammatory to the lowest typhus, you cannot treat them all alike—you cannot practise rigidly the antiphlogistic plan in all that may come before you; we shall have to notice some in which a quite different line of treatment must be pursued, for the treatment must always be applicable to the nature and condition of the fever. When we meet a case of high fever arising from local inflammation, that we know must end in suppuration, as in a case of compound fracture, we are not to push our antiphlogistic treatment so far as to *reduce* that fever completely, our object should be merely to *moderate* it, for the rest of the fever will vanish when the suppuration is established.

\* The state of the pulse in these cases is, I think, very much dependent on the *respiration*, and it is only where the breathing is relieved by the flowing of the blood, as it often is in pleurisy and peritonitis, that the pulse rises; and that one can always see this connection. The presence of the buffy coat will also be found to depend on the relief given to the breathing, and in the same proportion. —*Ed. of Lect.*

In some inflammations, as the gouty, resolution is out of the question; in others, as the rheumatic, bark must be thrown in; the pulse in this latter is such a one as on general principles would induce you to use the lancet, and freely too; but if you do so, you will do harm instead of good. If a man gets inflammation in his eyes from cold or damp, you must give him three or four grains of calomel with or without opium every three hours, and in twenty-four or thirty-six hours, when his mouth becomes slightly affected, the inflammation disappears as if by magic. You will perceive, therefore, that there can be but few general rules for the treatment of inflammation, and experience will teach you how much it must be modified by circumstances.

Let us now go to the other terminations of inflammation. If you examine a clean cut three or four hours after it has been made, you will find its lips glued together by lymph; if you gently separate them from each other, although you break up the adhesion there was between them in doing so, you will not see any rupture of vessels—there will be no bleeding; but examine this wound in twenty-four hours you will find that this lymph has become vascular, and in twelve or fourteen days the lips of the wound will be in complete apposition, the entire of the lymph having been removed by the absorbents. This lymph is not effused but secreted—it is not that which has been poured out by the cut extremities of the vessels, but which is formed by the minute secreting vessels of the part. All lymph is not organizable, the lymph thrown out in phlegmasia dolens, for instance, does not become organized; the organizable lymph is different from that which separates from blood drawn from a vein; if they were the same, the lymph thrown out by the inner coat of an inflamed vein would be washed away by the current of the blood as fast as it was formed, but this is not the case. Hunter, therefore, speaks very absurdly when he directs you not to wash away the blood that is poured out between the lips of a wound, under the notion that it would, if left, become a bond of union to them, and tend finally to their vascular union; two serous surfaces will be found in perfect apposition, perfectly united by the adhesive inflammation without any lymph between them, although an effusion of organizable lymph was the first step to that adhesion; in a bloody tumour of the scalp the blood is hardly poured out by the torn vessels when it is surrounded by a covering of lymph, and after days, or even weeks, the blood will be found almost, or entirely, in a fluid state. There is no criterion by which we will be enabled to decide in the first instance whether the simplest wound will certainly heal by the first intention, or suppurate. A rigor coming on, before the fever is fairly established, is no proof that suppuration will follow, for it is the natural commencement of the inflammatory fever, or may be caused by the fright, &c., but when the rigor occurs *after* the inflammation and fever are fully formed and have existed some time, it always indicates suppuration, and when this last is established it is a sort of crisis to the inflammatory fever, or, as the case may be, one of a typhoid kind,

which sometimes precedes the formation of matter; the redness of the inflamed part will then assume a yellowish tinge; and the heat and pain of the part will be assuaged, the tongue will become moist, the dryness and heat of skin will give place to perhaps a gentle perspiration, the pulse will become soft, and the bowels be moved. There is this analogy between the processes of adhesion and suppuration that the vessels become enlarged in the part. Pus is generally a secretion from a layer of coagulable lymph become vascular; the hardness that surrounds a suppurating part is owing to this lymph poured out into its structure by the adhesive inflammation; in acute abscess, then, the matter is always contained in a chamber of lymph which prevents its diffusion into the surrounding structures. This chamber is lined by a secreting membrane very analogous to mucous membrane; the track of an abscess is marked by a line of coagulable lymph, or this new membrane. I do not know how the wall of an abscess enlarges, but it is obvious it must enlarge as the contained pus increases in quantity. If it was from the pressure of the surrounding parts that the matter of an abscess gets to the surface, the most prominent part of that abscess should be the most tense; but the fact is directly the reverse, and we find, as Hunter has most satisfactorily explained, that the surface towards the skin is shrivelled—there is an actual elongation of the skin over the abscess. As the abscess is making its way to the surface there are two processes going on—viz., an absorption of the cyst and a deposition of lymph, thus gradually advancing the abscess, and, at the same time, preventing diffusion of the matter.

Although coagulable lymph is so generally connected with the formation of matter, there are cases where pus is formed without the slightest abrasion of the surface, or a particle of lymph being thrown out at all; in no instance, except in mucous membrane, is pus ever formed by an original structure; when it is formed by a wound, or under the skin, or any where else except a mucous surface, there is always a layer of coagulable lymph first thrown out; this becomes organized, and then secretes the matter. Benjamin Bell supposes pus to be formed by fermented serum; but this is not true, for serous effusion into cavities or elsewhere never becomes pus; you will read many other opinions on this subject equally unfounded, but fortunately it is one of no practical importance. Now, is it always easy to determine whether matter has really been formed, even when near the surface? It is not, although nothing may appear easier to you than to ascertain the fact by the feel of *fluctuation* in the part, and if you trust to one symptom or test in any disease, you will be frequently led into error; those who have the best tact in discovering matter may be deceived. One cause of error may be this—if you apply your two fingers on the opposite sides of an abscess, and press with one, the other will feel the fluctuation distinctly; but if the fingers be placed *too close* to each other, the elasticity of the part pressed by the one finger will give a sensation like fluctuation to the other, although no matter be really present; in fact, fluctuation is a bad test,

for if the parts under which the matter lies be very tense, it cannot be felt. Effusion into a bursa, and fungus hæmatodes in the gums, or any where else, will communicate to the finger the exact feel of fluctuation. When matter lies under a fascia of a limb fluctuation will not be felt, but if you pass your fingers over the surface of the limb, they will be supported evenly, except where the matter is afterwards to point, and there they will *sink*—you will feel the support or resistance, which the fingers received in every other part, to be lost there. Some abscesses require to be opened early, as over a joint, in contact with the synovial membrane, but not communicating with its cavity, lest it may make its way into the joint if you delay giving it exit externally. Abscesses in the neighbourhood of a large artery should be opened early, as also collections of matter under a strong aponeurosis, or in parts containing large quantities of loose, fatty, or reticular cellular membrane, which would permit the matter to accumulate to a great extent before an opening would form of itself. When you know suppuration to be inevitable, it is desirable to bring the abscess to maturity at once: now remember that the formation of matter, or its progress to the surface, is delayed by either a very high degree of fever and inflammation, or a very low condition of the system or the part—to accelerate the object you desire, it is obvious that the same means will not do in both cases; in the first you apply fomentations and poultices which tend to diminish the over action, by soothing the part and softening the skin, which, by the way, is their only use in the case; while in the second, you support the system and stimulate the part. When there is much pain in the part (unless it arises from the unyieldingness of the structures under which it is forming, as in whitlow) matter will not form properly, and will be productive of much constitutional irritation—the matter that may form will be of a thin bad kind, and the progress slow.

There are several methods recommended for the opening of abscesses; where the object is simply to give exit to its contents in a healthy subject, it ought always be opened with a lancet. It leaves a clean little cut, easily healed, whereas if the abscess breaks of itself, or is opened by some other of the modes advised, there will remain a ugly circular opening, very tedious in healing. A rule has been laid down in books to open an abscess in the most depending part, but it is a bad rule, for that, in fact, may be the thickest part of the wall of the abscess, and you are only to be guided in your choice of the best part to make your puncture by selecting the *thinnest* part of its parietes. If you open it any where but in the thinnest part, what will the consequence be? Why, just this—that nature will make her opening where she at first intended, and this even though the opening the surgeon made be in the most depending part, and be discharging freely. Setons have been advised for discharging the contents of an abscess, on the ground that it prevents the entrance of air into its cavity; but this advice is absurd. Can it be supposed that in drawing a thick rope of silk threads through an abscess, air

will not also be drawn in with it? But I think it very doubtful that if air *did* get into the cavity of an abscess, it would be productive of any ill consequences whatever. The only case where it would be at all rational to employ a seton for this purpose is where you would wish to evacuate the matter *slowly*. It has been said that opening abscesses with caustic improves their character or condition by its stimulus; but I never saw any solid ground for this opinion. You will, however, make a difference in your plan of opening according to the nature of the abscess; in an acute healthy abscess, you have only to make an opening with your lancet sufficient to let out the matter, but where it does not *point*, in a chronic or unhealthy abscess, you should make a large opening, and you will find that such will improve its condition. There, however, are exceptions in particular cases, where a *large* opening would not be desirable, as we shall see hereafter.

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## LECTURE II.

Abscess (*continued*)—Hectic fever—Symptoms of—Varieties in—Treatment.—  
Mortification—Kinds and symptoms of—Causes producing—Treatment.

WHEN the cavity of an abscess is being obliterated, the opening becomes on a level with its floor, and this state of the parts is termed an ulcer. When matter is to form, the local inflammation and the fever increase together for three or four days, and the part is hard to the touch. In this state use the antiphlogistic treatment, but when once the fever subsides, although the inflammation be still rather high, bleeding, and other strong measures of that description, would only retard the matter, which is now forming, and do no good. If a man gets, suppose, a wound of a sword in the palm of his hand, which goes through it, the skin through which the sword passes will heal, but the fever increases instead of diminishing, and creeps into the typhoid or irritative kind, from the inflammation and absorption of the fascia which continues after the skin heals; here if the patient is timorous and will not let you make the necessary opening, you must give him opium, and this will relieve the feverish state of the system; except poulticing and stuping, you can do little more under the circumstances.

## HECTIC FEVER.

There is another description of fever, often connected with the process of suppuration, called HECTIC FEVER, which is very different from other constitutional sympathies with local diseases of which I have spoken. Cullen and others assert that the presence of pus is necessary to the production of this fever, but certainly this is not the fact; we meet it often where a particle of pus is not to be found in

any part of the body. You will see, for instance, a woman of delicate constitution fall into decided hectic from suckling her infant longer than the state of her strength or constitution would warrant her in doing, and yet there may not be the slightest indication of any organic derangement to cause the formation of pus, either at the time or in perspective. Here is a case where simple exhaustion brings on the disease, and if the constitution be sound in other respects, its cure is simple and effectual. Strong emotions, or affections of the mind, if continued for any length of time, will, alone, bring on a hectic, which will be fatal if it does not receive proper attention. You see an example of this in the disease termed *nostalgia* by authors — where a conscript or recruit is forced to leave his family and his country, for the first time it may be, with small hopes of ever seeing either again. In neither of these instances, nor in many others that might be cited, is any pus formed; and that there is no mistake as to the actual cause of the hectic is proved by the fact, that it is effectually cured by making the woman wean her child, and sending the man back to the persons and places for which he yearns. Many cases of hectic present themselves where either no pus is formed at all, or where there is no proportion between the fever and the local affection supposed to be its cause. In hectic from a diseased joint the quantity of pus may be extremely small; and, on the other hand, we have cases where large collections of matter have been absorbed, by means of a successful line of treatment, or some change in the part or the system, and not a sign of hectic will be developed from beginning to end. There does not seem to be anything in the qualities of simple healthy pus that would lead us to think that it ought to cause so serious an effect on the constitution; it is a mild, bland, semi-fluid secretion, unirritating, tardily yielding to putrefaction, sometimes lying quietly encysted, for months, in the body: and for even years continuing to be secreted from the surface of an issue or other ulcer, without prejudice to the parts with which it has been in contact. We are still in the dark as to its uses, but, except from circumstances wholly unconnected with its particular nature, we see no injurious effects from its presence.

Hectic fever, when originating in a local injury or disease, is not a primary or immediate consequence of it; it seems to depend at least as much on an original tendency of the patient's system to be affected by it, as on the occurrence that more immediately appears to call it into action; for there is not any very exact proportion between the violence of the original injury and the chances of its being followed by hectic; trifling ones sometimes being followed by a rapid and fatal hectic, and extremely violent ones, on the other hand, escaping it altogether.

How are we to know when a patient is hectic? It is often extremely difficult to decide the point in surgical diseases, although easy enough in others, as in phthisis. In surgical hectic the symptoms are never so regular as in others. Hectic fever is often preceded for weeks or months by wandering pains in the limbs like

rheumatic pains ; here the greatest caution is necessary on the part of the surgeon, for if the patient has had the venereal disease, and that he was treated irregularly, they might be mistaken for venereal pains, and if mercury be, in consequence, exhibited, the patient is driven rapidly into the worst stage of hectic. As soon as the fever sets fairly in, those pains gradually subside. The first symptoms of hectic may be easily, and in fact frequently are, unnoticed ; it is so irregular in the occurrence of its paroxysms, that in any six days of its duration there will not be three of these days in which the paroxysm will happen at the same hour. The patient at first only feels a little weakness ; he is conscious of not being able to use as much exertion as he used to do, and his friends remark he does not look so well ; he rapidly loses flesh ; yet his appetite may be as good as usual, and his functions go on regularly. It is soon perceived that once or twice a day he gets a change ; about noon a shivering comes on, and lasts perhaps for half an hour, during which he looks pale, and his countenance drawn in ; after this the warmth returns and the heat soon increases beyond the standard of comfort, particularly in the palms of his hands, &c., which have a peculiarly biting hot feel. There is nothing in this cold and hot stage of hectic like the corresponding symptoms of most other fevers. He may, without arousing any particular attention in his attendants at the incident, get his chair drawn nearer to the chimney, have the fire stirred, and something wrapped round his feet ; by and by, he complains that the fire is too brisk, moves away from it, has a screen interposed, causes the door to be left open, and that's all. Sometimes the chilliness returns during the hot stage, or there comes on the sweating stage (which in hectic is not a general full perspiration over the whole body), and on its subsidence leaves the patient pretty well until the next attack, which usually comes on about six or seven o'clock in the evening. The sweating is seldom perfect ; it is generally over the chest and arms, but sometimes on the lower extremities alone ; it is not like the sweat in some other cases, but a greasy kind of moisture. The appetite, as I have said, remains tolerably good, and the thirst is less than in other fevers. As it goes on, the patient still loses flesh and strength ; the appetite begins to decline ; his tongue continues clean, but redder than natural ; his mind becomes easily excited ; his pulse is about 90, seldom gets as high as 120 ; his countenance changes ; his forehead seems larger, from the falling off of his hair ; his eyes get a pearly-white appearance, and sometimes are peculiarly brilliant ; he flushes often, or there is a circumscribed redness on one or both of the cheeks ; his nose is drawn in, and his finger nails become incurvated. A colliquative diarrhœa generally occurs in the morning, and when this is the case he sinks rapidly ; not, indeed, as some imagine, from the consequences of the diarrhœa itself, but from the extent to which the fever has arrived. He will complain of a slight sore throat perhaps, and on examination, a number of white specks called aphthæ are seen on the soft palate, or perhaps on the tongue, or under the tongue ; or what is more

frequently the case, there will be seen a large ulcer in the throat. When these aphthæ, or this ulcer appear, you may despair of your patient — he will not recover. Towards the close he is worn to a skeleton, and is as weak as an infant. Although the intellect remains little impaired until a short time before death, when there is a slight delirium, his mind partakes of the general weakness; his legs become œdematous; his urine comes away insensibly, and he no longer calls for the bed-pan; he falls into slumberings, and at length dies off exhausted — often so quietly that those about his bed may be awhile unconscious of the event.

During the whole progress of the fever, the patient entertains the most sanguine hopes of his ultimate recovery. I had an intelligent pupil in this state once, who, if he had seen any other persons in the same condition as he then was, would have immediately pronounced the impossibility of their recovery, yet to the last he had no idea of his approaching dissolution. I know of no other disease but hectic fever where this unconsciousness of their fate remains so long. Quickness of the pulse is not an essential character of hectic; I have known it natural all through, except during a paroxysm, or some temporary excitement. There is one thing in hectic that removes all doubt as to the real nature of the fever, it is this — if in the midst of the hot fit he suddenly relapses into a cold fit, you may be sure it is hectic. I know of no other surgical fever where this occurs except urinary fever, in which the other symptoms remove all difficulty of distinction. In the beginning, the hectic has intermissions more or less perfect, but it soon becomes remittent — that is, never entirely subsiding. In some surgical diseases, as cancer, this fever presents few of its prominent characters well marked, such as you might observe, for instance, in extensive disease of a joint. In some diseases you will see one symptom, as the diarrhœa, almost alone; in others, the sweating, and so on: in fact, there is great variety in its appearance and course.

Hectic fever is sometimes interrupted in its progress by pregnancy; the woman is respited until delivery, and then the fever resumes its course at the exact stage in which it was at the time of conception; but this is not always the case, for women do sometimes die hectic during utero-gestation. In the same way hectic, in phthisis, is sometimes suddenly arrested by mania, which may continue for three or four months, after which, the mind gets well and the hectic takes up the patient where it left off, and runs its course as it would have done had nothing occurred to interrupt it.

If the cause of hectic is slight, removing that cause will not remove the effect, for then it is plain that the constitution is predisposed to the fever, or so small a cause could not bring it into action. Suppose a strong country woman is brought into a hectic state from nursing too long, take away the child from her, and in three weeks she will be quite well; but suppose a woman in the same circumstances, but prone to consumption, removing the child from *her* will not remove the fever, but it will go on. The diet of a patient in

surgical hectic need not be so much restricted as it should often be in one arising from phthisis; for instance, he may take animal food if it agrees with him. He will urge you, and so will his friends, to stop the purging which comes on, and imagines he will then be quite well; you prescribe the ordinary treatment for diarrhœa, and it is checked, but is he relieved? No; for there comes on the sweating in bed on any little exertion, or without any obvious cause; you are then besought to do something for that, and what is the result? If you relieve them by the mineral acids, you will find that for the two or three days following the nights he has been without the sweats, he suffers considerable uneasiness, nor is he relieved until they come on again. Dr. Gregory used to relieve night sweats by a meat dinner and a pint of draught porter going to bed. It is an error to say that it is the colliquative sweats or diarrhœa that are wearing down the patient, for they are mere symptoms. It is the fever that wears him down, and that alone. Aphthæ indicate the last stage of hectic fever, as I before remarked, and where they are the patient must die; but take care you do not confound them with those aphthæ which some people have for years, and those to which children are very subject, but which are not dangerous: it is the hectic aphthæ alone which are so, and which are often found after death connected with ulcerations all through the alimentary canal.

## MORTIFICATION.

In speaking of the terminations of inflammation, I should have mentioned that in particular *kinds* of inflammation, and in particular *structures* there is a natural tendency to a particular termination. Thus a serous membrane has a tendency to adhesion when inflamed—a mucous membrane rather suppurates. Rheumatic inflammation *generally* ends in resolution, and there is rather a tendency in erysipelas to gangrene. But there are kinds of inflammation which always end in mortification, or rather, I should perhaps say, in which the inflammation and its consequence run *pari passu*, such as Anthrax. There is in general an intermediate state between active acute inflammation, and the absolute death of the part, termed *Gangrene*, in which there is a chance of saving the part from sphacelus by a well-directed line of treatment; you see therefore that mortification is sometimes a consequence of common inflammation, and sometimes not. Let us take a case:—Suppose a healthy man gets a compound fracture of his leg, which is to end in mortification, how does he go on? For the first two days there are no symptoms which indicate the approaching mischief: on the close of the second day there is more pain in the part than there ought to be in a simple case; in a day or two more the skin becomes livid and then black; it loses its consistence, it gets flatter, spreads, and is without any well-defined border; the cuticle separates; the feel gives a crack-

ling sensation to the fingers; where the inflammation has gone up to the knee the whole thigh may be enormously swelled, and have the crackling feel throughout; the pulse becomes quick and weak, the full inflammatory face sinks, and the countenance gets pale and covered with a greasy sweat; there is great anxiety and constant vomiting: generally until the latter stage, the mind is not affected, but sometimes there is delirium ferox; the stomach continues to reject everything; the patient tosses his limbs about; after a little he ceases to have any pain in the limb, and he appears to be getting better, but the pulse is weak, and when gangrene sets in, he seldom survives three days. When the patient is to recover, on our coming to him in the morning we find him better; his pulse is fuller, and he has gotten some rest during the night; the margin of the mortified part has become defined, and a red line, the adhesive inflammation, appears round it, which increases; specks of ulceration form in it, they coalesce one with another, and at length form a ring of ulceration which passes deeper and deeper until at last it casts off the slough. This red line never shows itself during a high degree of inflammation; if high inflammation should supervene after it has formed, the red line will vanish, and the mortification will soon go on as before; but a new line may afterwards form, and again bound the inflammation.

Sometimes a kind of gangrene comes on after ten or twelve days of fever, without the patient giving any warning, except complaining of cold in the limb; in this case the line of separation soon forms, but the separation of the slough goes on very slowly. If you amputate here, the operation is painful, and the skin won't retract; yet you must operate in such a case however: such a case as this usually arises from cold and damp. Parts receive mortification in the same proportion as they would do ulceration; thus a tendon will neither mortify nor ulcerate as soon as some other parts. A smell like that of putrefaction is sometimes emitted from a mortified part, but the two processes are very different, though some have fancied them the same, and from this cause have recommended antiseptics in various ways for the treatment of mortification. Effused blood will put on something of the appearance of mortification in a part, and even vesicles may come on its surface, so as to lead careless observers into mistakes as to what it is; but if it is blood the constitution is not disturbed, nor is there the great pain in the part that there would have been if it were mortification; certain states of erysipelas are very like gangrene in appearance, but they may be distinguished by the nature of the accompanying fever. The prognosis in mortification will depend more on the constitution of the patient, and the way in which it commenced, than on the apparent extent of the local injury; when mortification is preceded by high inflammation, and is the consequence of it, the prognosis is worse than when it is the immediate result of violence. Our treatment must be guided by these considerations. When mortification is the result of inflammation we

should not amputate until the line of separation is formed, for the high constitutional disturbance present would destroy every chance of a favourable result. When death takes place in a limb *immediately* after the receipt of an injury, such as by a cannon-shot, we may amputate this limb, after the first shock is over, without waiting for a line of separation between the dead and living parts to be formed. The patient has no chance of surviving amputation when the gangrene is spreading, and the fever high, and before the line of separation has formed. When you see a part hastening to gangrene you must treat the case as one of high inflammation; even if there should be vesicles on the part you must bleed the patient, and repeat it should the pulse have the inflammatory character, instead of anticipating the debility that is to follow, by giving stimulants and antiseptics. In the *worst* cases, if you give wine, it will not rest on the stomach; what, then, are you to do? Give burnt brandy, or tincture of opium in mint tea, where stimulants are really required. Great reliance is placed on fermenting poultices on mortified parts; for my part, I do not think one poultice much better than another; in the latter stage perhaps a carrot poultice would be useful. No one now thinks of scarifying a mortified part, although at one time the only dispute was as to the depth your incisions should go. After the line of separation between the dead and living parts is formed, we are still not certain that everything will go on right; for if the constitution be bad, or the case be treated injudiciously, the mortification may pass this and go on again, as if no such line had been formed; you may be able to satisfy yourself that the line of separation between the dead and living parts is in progress of formation before you can *see* the least sign of it—if the gangrene is spreading the margin will not be defined to the touch, but if it is about to stop you will feel a slightly elevated and hardened ring where the line of separation is beginning.

Bark has been thought by some to be a specific in mortification; but it is not a medicine to be poured into the stomach in every case of this kind; in fact the stomach will not retain it. When the fever has entirely ceased, bark will be then found a valuable remedy, but not until then; should it cause an inordinate thirst, or a foul tongue, it must be immediately discontinued; sulphate of quinine bids fair to supersede the common bark; it rests easier on the stomach, its bulk is small, and the patient is not obliged to swallow a quantity of inert matter.

The exciting causes of mortification are sometimes extremely slight; for instance, if a patient, labouring under anasarca, gets a scratch of a pin, or a surgeon punctures a part with a fine lancet to let out the fluid, in the great majority of cases this scratch or puncture will end in mortification; in another individual mortification will extend from a common boil. It is a curious fact that when gangrene arises from these slight causes its progress is much slower, and when it is to end fatally the patient lingers longer than when it attacks a robust healthy man.

There are causes independently of any local injury which produce mortification. I have heard it remarked by persons connected with large lunatic asylums in Ireland, that the unfortunate inmates of those institutions are particularly subject to mortification of the feet, without any apparent local circumstance to account for it. Excessive cold of a part will cause mortification of it, but sometimes a much less degree of cold than that of freezing will do it. A man, suppose, gets a fever, which, as it is the fashion, we must call typhus; well, on the eighth or ninth day one of his legs is observed to become colder than the other; it is not merely that the patient himself feels it colder, but there is an actual reduction of its temperature; the next day perhaps it is insensible; sometimes no pain is felt in the limb, and very rarely is there any considerable pain; the leg has sometimes a fulness in it, and sometimes it is shrivelled, and it quickly falls into gangrene. Cases of this kind have occurred where the foot mortified, and dropped off at the ankle, after a slow process. The most we can do generally in such cases is, when we feel one of the bones perfectly loose, to remove it gently with a forceps; or if the gangrene, suppose, stops at the middle of the leg, to wait with patience until the ulcerated surface of the living portion looks clean round the tibia and fibula, by which alone the inferior portion is retained, and then to saw through the bones and liberate it. I have never, with but one exception, known this occurrence to take place in those who were comfortably lodged in a wholesome dry place; it is always among the poorer classes; I have never, in the higher classes, known an individual lose his limb from fever, but my experience of fever among the wealthy is very limited, it being chiefly derived from hospital practice. Well, how are we to treat such a case? not by antiphlogistics certainly; the only thing to be done is to prevent any moisture being put to the limb, and to keep it warm with hot flannels, &c. Suppose you were to go to amputate this limb, you would find it the most troublesome and the nastiest operation that can well be thought of. Sometimes in fever the skin covering the prominences of the scapula, scrotum, hips, trochanters, &c., becomes excoriated, gets red, and becomes mortified in the centre; this arises from pressure and extreme debility, and the most you can do is to apply cushions of curled hair in chamois leather under the hollows of the body to equalize its weight on every part; local applications to the mortified parts are worth nothing, but when they first become red you might apply spirits, either alone or mixed with vinegar, and this will often stop the progress of the local affection. When the cuticle is abraded, lay a thin sheet of gold-beater's leaf on the part; white of egg spread on linen or thin leather will be found useful to prevent these abrasions. After the fever has subsided and the patient is getting well, perhaps getting fat and walking about, still one of those gangrenous spots may show no disposition to heal; should the part be the prominence of the sacrum and the slough be attached to the tendinous aponeurosis covering it, don't be in a hurry to take your instruments to cut it off. If you do, teta-

nus will in all probability be the consequence ; cutting off sloughs in any case, except where they are completely detached from the living parts, and only retained by their continuity with a small portion still connected below, is a foolish and very dangerous practice. I knew a young surgeon, who, getting impatient at the slough of a caustic issue he had made, not separating as soon as he thought it ought, took a scissors and cut it off, and the patient died of tetanus. Gangrene from cold comes on in two ways :—A person, for instance, walking in very cold weather on ice, without shoes or stockings, finds, in the evening, a stiffness in his leg, and without any very apparent pain or inflammation it falls into gangrene. While in another such case a very high degree of inflammation takes possession of the limb before gangrene occurs. In a part affected by excessive cold you must not apply heat suddenly ; its vitality has been lowered, and is therefore unable to bear the stimulus of heat in the first instance, as it would cause the death of the part. You must make the transition to its natural temperature very gradually and cautiously. If a part be in a state of high acute inflammation, we should be equally cautious of applying anything to it that would be likely to reduce its temperature too rapidly, such as ice ; the *cold* in this case would likewise be too strong a stimulant for the power in the part to resist its excitement, and the same consequence would follow as the application of heat in the first instance to a frozen part. Your first application, then, perhaps will be snow, the next cold water, then water a little heated, and so on ; these should be applied with friction. Notwithstanding our best care, should reaction set in too violently, we have then only to treat the case as we would one of common inflammation.

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### LECTURE III.

Mortification (*continued*)—Pott's gangrene—Cancerum oris—Erysipelas : modes of attack ; treatment—Chronic erysipelas—Erysipelas of infants—Contusion.

TIGHT ligatures or bandages round a limb will cause mortification. A man, suppose, gets a simple fracture of his leg, and an unskilful person puts a bandage very tightly on it ; in twelve or fourteen hours the patient cries out with great pain, and if the bandages are not quickly removed, that limb speedily become gangrenous. Gangrene, as I have mentioned, sometimes occurs without any feter, and the part becomes dry and shrivelled up ; the patient's health is not much affected, and he walks about with this limb which he no more feels or can use than if it was a piece of timber hanging to him. It is the effusion of serum which takes place in gangrene from inflammation that causes the feter ; in this dry gangrene it is the want of moisture that causes the absence of feter. Sometimes, although

very rarely, a limb attacked with dry gangrene, does not become black, but dies of a white colour.

In the *dry gangrene of old people*, the upper extremity is, I think, more commonly its seat in women, and the lower extremity in men. You will see it sometimes commence at the extremity of the finger, which becomes perfectly white at first, and then more or less livid; then it begins to be painful; the fingers gets small, become shrivelled and dry. It generally attacks two or three, or all the fingers of the same hand; its progress is usually very slow. In such cases wine and bark are to be given; the bowels are to be kept *moderately* free; and the patient to make use of animal food of easy digestion. The local treatment should consist of gently stimulating embrocations, such as warm camphorated spirits or spirit of turpentine, and we must endeavour to maintain the natural temperature by warm flannel; an opiate should be given occasionally to moderate pain when it becomes severe. The shrivelling up of an entire limb is a thing of very rare occurrence. Although it has been more commonly observed in people at or after the middle periods of life, it is not by any means peculiar to any particular age. It is not preceded by fever, but the first thing observed is the drying up of the limb, which at length gets black, without being attended with pain, but only a sense of weight in it; it slowly creeps up, without any bad smell, any discharge, or any disposition to separate spontaneously; and for months of its progress the patient will continue to enjoy good health. There is here no occasion for us to be in a hurry with our assistance; surgical interferences by incisions, &c., is very bad practice at first—it can, in fact, be of no service. This affection is more frequently seen on the continent than with us, and would seem to depend greatly on poverty of diet. It is to be found, however, in every rank of life.

#### POTT'S GANGRENE.

There are some cases of mortification not referable to any of the kinds I have mentioned, but which partake somewhat of a specific character; among these is what is called Pott's gangrene. This disease is not met with in early life, and it seems to attack men oftener than women; I never saw it in a person under the age of forty-five, and very seldom under sixty-five years. In my experience, hard drinkers are more subject to it than others. The first symptom precedes for a longer or shorter time the local appearances; the patient complains of violent rheumatic pains, or pains exactly resembling rheumatism, but on examination there is not the slightest appearance of redness in the parts; the pain, which is most intense, generally begins about three o'clock in the day. This may be the only symptom for months, and the patient may get well of them for a time, even so long as for six months, and then the gangrene comes on. The first appearance is a blue vesicle, which generally forms on the inner side of one of the toes, sometimes on the under side of

the toes, but very seldom on their upper surface; the cuticle is higher than the level of the surrounding skin; when this separates there is seen a dark-coloured ulcer with a hardened base. Although this is attended sometimes with severe pain, yet the constitution suffers but little; in fact, not more than what you would expect from the want of rest. The sloughing and ulceration spread with greater or less celerity, but in general the progress is slow. From the part first attacked it gradually seizes on the other toes, then on the tarsus, and so on to the ankle. When it comes to the first joint, separation of the mortified part begins, and the joint hangs by one of the tendons; do not on any account cut this tendon, nor, as some advise, take it in your forceps, and twist it off. It would answer no useful purpose whatever, but would render the subsequent progress of the disease much more rapid, and what is still worse, might bring your patient into immediate peril of his life. As soon as the separation begins in one part, the pains return, and the disease goes on as at first, to the destruction of the next, and thus it may continue to intermit and recur for two or three years, or even more, before all the toes are gone. During all this time the patient enjoys tolerably good general health, and except when in pain feels little wrong with him.

Pott thought he had discovered a specific for this complaint in opium, and wrote on the disease with the view of recommending it, but experience has not confirmed the confidence in the medicine which Mr. Pott's paper at one time raised in medical men. It is necessary to relieve the severe pain, and for this you must give large doses of opium, and it is only from extremely large doses that any benefit is obtained — but, except for this object, opium does no more for this disease than for any other species of mortification. The limb is to be kept in the horizontal position; warm stimulating applications are to be used on the part, and by these means you may keep off the disease for months, although it will eventually recommence its career. You will at times find that emollient applications or fermenting poultices give the patient ease, but sometimes either will be found to increase the pain. I have seen an affection resembling this in the fingers of women, the first symptom being a preternatural coldness in one or two of the fingers; should you find it in this stage all you have to do is to keep the hand warm, and give good diet. I met it in one woman of indolent habits in whom it began with violent pain in her arm, gangrene came on, it was stopped afterwards, but from beginning to end there was never pain in the part itself.

There is another variety of mortification called *cancerum oris* found chiefly in children — very seldom, however, among those of the wealthier classes, but among those feeding on poor, unwholesome diet — and left, perhaps, neglected in their wetted clothes or bed, habitually. So frequent was this disease in the Foundling Hospital, that it was considered a kind of endemic complaint there from year to year. Children that appear particularly subject to exanthematous diseases are not unfrequently affected with this also. The first symptom perceived of it is a fulness in one of the cheeks, and if you put

your fingers into the child's mouth, and feel the part from within and without, you will find that the cheek is really thickened ; there is no particular redness to be seen in it on the outside, but after some time a red line appears forming around the tumefied part, and sooner or later all within that line will slough out. Sometimes the whole cheek will come away, and the disease often proves fatal. At first all you can do is to poultice the part and sustain the child's strength by suitable nourishing diet — attention to cleanliness, warmth, &c., and the exhibition of bark and other tonics. When the slough separates you are to endeavour to arrest the further progress of the disease by pencilling the edges and surfaces with strong muriatic acid, or, what I prefer, the muriate or butter of antimony.

#### ERYSIPELAS.

The right understanding of the peculiar form of inflammation called erysipelas, is of great importance to you ; as in certain constitutions it will thwart the best designed and executed surgical operations, and may convert an otherwise insignificant injury into a very formidable one. It is by far more immediately connected with the patient's habit of body, than with the cause immediately producing it ; bears no certain relation to that cause in the severity of its attack, and in fact often arises in a part without any obvious local cause whatever. It is either idiopathic or symptomatic. In some cases I consider the local appearance of erysipelas as a mere symptom of a peculiar fever. In idiopathic cases there is sometimes no fever whatever accompanying. There is observable in some a peculiar disposition to it, and when it is thus constitutional it is a very dangerous complaint. Although erysipelas has, not without some reason, been considered a disease, the proper seat of which is in the skin, yet it sometimes appears to extend itself into the subcutaneous cellular membrane, and is then called, on account of its mixed character, *phlegmonous erysipelas*, and this is the very worst form of the disease. But however it may arise, or in whatever form it presents itself, it differs very much from pure phlegmon. Erysipelas will have, in the great majority of instances, its boundary defined by its colour — there are some cases of it, however, that I shall have to speak of in which the colour extends far beyond the actual disease ; in phlegmon, as I have before mentioned, the boundary is perceptible to the touch — the hardness of the adhesive inflammation. Erysipelas may begin in the hand or the foot, and gradually creep on to the trunk ; phlegmon remains where it began, and only enlarges — the first part affected continuing inflamed. The fever attending or ushering in either are very different.

Erysipelas comes on in various ways. Sometimes a person is attacked by an exanthematous disease, and this ends in erysipelas ; this is an idiopathic form, and belongs to the physician. In a symptomatic form, a man will be seized with a violent shivering which will perhaps last half an hour, and shortly after an eruption will make

its appearance ; the pulse is often full and hard, the tongue yellowish, but as matters proceed, becomes of a perfect mahogany colour ; there is very great thirst ; sometimes delirium ; the inflamed part is hot, but without that feel of tension there is in other cases. The fever, then, you observe, precedes the eruption, and it may be even of two days' continuance before the local affection appears, but that is the longest period ; it is more violent, and more affects the digestive organs, particularly the liver, than the fever of phlegmon, and is more uncertain in its duration than any other fever. For some days before the actual setting in of the fever, the system will give some of the premonitory symptoms of approaching mischief. The patient will feel a lassitude, drowsiness, and dislike to exert himself ; his digestive organs, and particularly the liver, will suffer some derangement ; his sleep will be disturbed and unrefreshing, and his appetite fastidious and bad, or he may have nausea and vomiting ; he cannot apply his mind to business, and will often complain of a dull uneasiness in his limbs ; but with any or all of these things, you can't say positively that what is to follow will be erysipelas. The fever does not subside on the coming out of the eruption, but, on the contrary, is often much increased, differing in this respect from most other eruptive fevers. The erysipelatous fever sometimes sets in with high delirium, and sometimes with coma, as other fevers do. Delirium or coma coming on *before* the local inflammation appears, seldom indicates anything dangerous ; but if the eruption sets in with slight constitutional symptoms, and if after lasting two or three days, that then delirium or coma comes on, that patient will die. When the tongue is brown, dry, and hard, with the fever going on, the case is very dangerous.

Now, we are told it is difficult sometimes to decide whether the case be phlegmon or erysipelas ; I do not at all think so, but if a symptom *be* required to distinguish between the two inflammations, it will be found in this — that in erysipelas there is no *hardness* in or about the inflamed part, as there always is in phlegmon. The redness over an erysipelatous surface is uniform at first, but if it becomes cloudy, is broken up into detached spots, you may be sure the disease is about to give way. You will next see it become yellow, and finally, the cuticle scales off. In some cases vesicles form on the inflamed surface, and where on their bursting you see a new cuticle formed underneath, you may consider this not at all a worse case than where there were none ; but when there is a great deal of pain in the part, these vesicles generally degenerate into foul ulcers, occasionally gangrenous. Now, although this is often a bad case, yet it is not always so ; they sometimes do not spread, but get better from day to day, and in the end the patient will do very well.

The time an attack of erysipelas is to last is very variable ; in no case will it end before the expiration of five days, but it sometimes goes on for twenty or thirty days, or may even last for six weeks. There is, certainly, no crisis remarked in the disease ; you see your patient, suppose to night, and you find his tongue of a perfect ma-

hogany colour, perfectly dry, and all his symptoms worse ; yet the next day you find him better to all appearance — his tongue moist and cleaning, and he improves from day to day, until he is quite well. When the local affection goes on with little constitutional disturbance, the case is a favourable one ; but when it is preceded by high fever, and that this continues some time, where there is delirium, or where the tongue is dry, brown, and hard, while the fever is going on, the case is very dangerous. Sometimes the eruption suddenly disappears — the pulse sinks, the patient falls into a lethargic state, and dies, apparently from debility. You will find it laid down in books, that when the erysipelas ends fatally, it is by its receding from the surface to some internal part. Now, this is never the case. I have examined several after death who died of this disease, and have spoken to others who made similar investigations, and never saw anything to bear out this opinion myself, nor heard of it from any one who did witness an instance of it. It is necessary to be aware of the fallacy of this notion, for it has had a very injurious influence on practice, by preventing the employment of the most useful remedial measures. In the commencement of erysipelas there is a high degree of inflammatory fever : the pulse is full, hard, and beats as high as 100 or 120 in a minute. Here you might be inclined to employ strong antiphlogistic measures — to take a good dash of blood from the arm, and so forth : but this is hardly ever necessary, and often would be highly injurious. If you have such a pulse in the beginning of erysipelas, with irritability of stomach, give an emetic, and the pulse immediately becomes soft and regular. Such a pulse here does not arise from inflammatory action, but depends on some cause originating in the stomach and bowels. Give large doses of tartar-emetic : you need not be deterred from causing full vomiting by the apprehension of a blood-vessel being ruptured, &c. ; and you will find it is the only thing to be relied on. After you have cleared out the stomach, you will continue the tartar-emetic, as advised by Dessault, in small doses, such as will affect the skin. Purgative medicines are also very useful to remove bile ; and I know of no one better than another, except that which remains best on the stomach. You will give acid drinks to relieve the patient's thirst, and keep him moderately cool ; but, remember, pure erysipelas does not require bleeding, however the state of the pulse may seem to demand the lancet. When the fever is of the typhoid kind, you will not, of course, attempt any mode of treatment calculated to reduce the fever, or patient, no more than you would in such a fever from any other cause. On the contrary, you must administer wine, cordials, &c., to support his strength. Now, bark, which is so useful in other apparently analogous depressions of the system, does not, according to my experience, do much service in these cases. There are many affections which bear a resemblance to erysipelas, and among these is rheumatism ; and I am convinced that many of those cases said to have been cured by bark, were of this description, and not true erysipelas.

With regard to local applications to this form of inflammation,

very little can be done — warm fomentations, poultices, and other relaxants, are inadmissible, except, perhaps, where it comes from a wound. They do not even give comfort — they are not liked. The distressing heat may be moderated by cool lotions and mild astringents, such as solution of acetate of lead ; dusting the part with some fine powder, as flour or hair-powder, is often very soothing and grateful to the patient. Should the erysipelas be followed by ulceration or gangrene, just treat the ulcer or gangrene as you would similar ones from any other cause, except in the greater caution as to bleeding, or the too early exhibition of tonics.

While in such cases as those almost our whole attention and treatment must be directed to the constitution, there are cases where erysipelas is a purely local complaint, such as that, for instance, which comes from a wound in an aponeurotic structure, and where our treatment also must be chiefly local — not such, however, as we employ in phlegmon. We shall have a good example of such a case in a particular wound of the scalp producing erysipelas, where the local treatment is almost all that is necessary to give any attention to, as far as the erysipelas is concerned. Wounds connected with tendons, and particularly punctured wounds, are attended with erysipelas ; but no one, in such cases, would think of minding anything but the wound itself. It is of the first importance, therefore, to distinguish between an erysipelas arising from a wound, and produced by the nature of that wound, and one which is caused by a deranged state of the constitution, and only excited by the wound, which itself may be a very trivial one.

A man — with or without wound or ulcer on his leg, suppose — perceives a little redness on the dorsum of his foot : this, by degrees, spreads upwards on his leg, and looks like erysipelas ; but in my opinion it is not true erysipelas — it will be found to be a deadening of the cellular membrane, and the skin only inflames from being placed over it — it acting as a foreign body : for as this simple inflammation proceeds, the skin gives way, and shows a quantity of sloughy matter beneath. When this is discharged, the skin affection gives no further trouble. In phlegmonous erysipelas, it is an excellent rule to make early incisions ; but as long as it is confined to the *skin*, no such thing should be attempted. Now, discussions have arisen as to what length and depth these incisions should be carried, as if their extent was a matter of the chiefest importance ; but you will easily perceive how far the circumstances of each case will require them to be carried, and there can be no fixed rule on the subject. All you have to do is to make them of sufficient extent to let out the sloughs or matter : anything short of this is doing nothing — anything beyond it is doing too much.

On the going off of erysipelas, it sometimes leaves a fulness behind it, which pits on pressure like anasarca, but which is readily distinguished from it by the thickened and roughish cuticle. Now, it is a remarkable fact, that if the skin be left in this morbid condition, it will be attacked a second time with erysipelas at some future

period — it may be in three, six, or twelve months, but it will not escape another attack, one that will be more severe than the first, and which will leave a still greater fulness and thickness than the first did. When this happens, the patient will, in my opinion, be subject to returns of the malady for the rest of his life. Such a disease I should be inclined to call *Chronic Erysipelas*. I have tried everything I could think of to cure this chronic form, and although in every trial I produced an amendment, I never completely succeeded with the existing affection, or in preventing a return of the erysipelas in its more acute form.

After recovering from erysipelas, the patient should be warned to be very careful of observing strict precautions in his habits of life, for some time at least. His bowels must be kept in good order; he should take moderate exercise in pure air, use light and simple diet, and avoid anything like intemperance in drinking. Should the attack have been in a limb, it will be often necessary to employ gentle frictions, and perhaps a roller around it.

If the erysipelas should have been in the scalp and face, which it not unfrequently is, the hair will fall off as the patient recovers, and will continue to come away in the comb for some time after he is perfectly restored; now, this should not be neglected, for if it should be, the hair may not grow again on that part. The best way to avert such an unpleasant deformity, is to have the head shaved two or three times, with the interval of a few days between each time.

In infants there sometimes appears a kind of erysipelas which may even be born with them; it begins in a slight redness about the navel; its progress is wonderfully quick, extending in every direction, but in some cases it ends fatally before it attains the size of this watch; it has not the soft feel of erysipelas in other cases, but resembles exactly the feel which you all must have one time or other observed a subject in the dissecting-room to have in frosty weather; this will remain four or five days, and the child's constitution will appear to suffer very little; if the inflammation spreads it dies rapidly, and the inflammation will be observed to have extended to the peritoneum. Do not believe the nurse when she tells you it is better or worse, but look to the symptoms. The best treatment is bark, exhibited in every way you can; by the mouth, by glysters, and by lotion. This disease sometimes makes its attack on the infant's buttock. I have said it may sometimes be born with the child; in a case I saw a few days ago, it was of six weeks' standing, and although the redness extends half over the body, the real erysipelas is only an inch in extent. You cannot treat those affections in infants according to the ordinary rules for treating erysipelas; you must avoid much purging or nauseating remedies, and, as I have said, your great reliance must be on bark.

The question has been started whether erysipelas be contagious or not, and it has been adduced in proof of the affirmative, that several people in the same ward of an hospital will be attacked with it at the same time, without any obvious cause, and where there was no want of cleanliness and care; but this is only a proof that there is some gene-

ral predisposing cause, with which we are not acquainted, operating in the case. The greatest number of cases occurring in Ireland at the same time, have been remarked to be during the prevalence of very warm and moist weather. Those who believe in fevers being contagious, may, by the same train of reasoning, believe erysipelas so too. It is certainly remarkable that a number of cases will appear at the same time in an hospital in an unaccountable manner; and surgeons at such a time will delay performing any operation that can be delayed, for days and weeks, knowing the great risk the patient will be in of getting erysipelas from his incisions. I have been told by a navy surgeon that erysipelas has broken out in his ship, and that although the utmost attention was paid to cleanliness, ventilation, &c., a great many of the sailors were attacked by it without any visible cause, and that after it had continued in this way for three months, it went away of its own accord, with as little apparent reason as it came. Common fever is another thing which has been often mistaken for erysipelas; it was a remark of Dr. Harvey that there was never an epidemic fever in Ireland that was not followed by numerous cases of erysipelas in the hospitals.\* If in fever a partial redness appears in two remote parts of the body at the same time, that appearance is certainly not true erysipelas, it is only a symptom of the fever, and one which when it occurs is generally a sign of the fatal termination of that fever. Erysipelas never in any case appears in two separate parts of the body, as a leg and an arm, at the same time, except by continuity; wherever these erysipelatous appearances are contiguous, but not continuous, it is not true erysipelas.

## CONTUSION.

Before we speak of wounds, we will say a few words about *Contusion*, by which term is meant an injury inflicted by a blunt instrument, without necessarily causing a solution of continuity in the skin. The effects of this kind of injury are sometimes of the most alarming and dangerous description—the viscera of the great cavities may be ruptured by a blow or fall without any appearance externally to indicate the mischief: so, likewise, bones may be fractured, or even broken into small bits, as by a cannon-ball, without the slightest apparent injury of the skin over it. But they are not always of so grave a character, or indeed commonly; the most trivial consequence of contusion is a slight tumefaction unattended with pain, except for the moment, and a discoloration of the skin, owing to an effusion of blood of trifling amount, called *ecchymosis*; this is generally what happens when the place injured is over a thick cushion of muscles or other soft parts; it requires little attention—the swelling soon subsides—the black and blue colour of the skin fades

\*For several years it has been remarked in the Lying-in Hospital, Britain-street, that puerperal fever and erysipelas frequently alternate with each other—the latter being, in such cases, situated about the vulva and buttock.—*Ed. of Lect.*

into a yellowish hue, and gradually disappears entirely. The contusion may, on the other hand, be just sufficient to cause immediate death of the skin, or cellular membrane, or a bone; or merely excite inflammation in them, which may or may not end in gangrene.

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## LECTURE IV.

Contusion (*continued*)—Wounds—Simple incised—Lacerated—Punctured—Gun-shot wounds—Nervous affection from wounds.

A CONTUSION which causes a tumour, as, for instance, over a bone, acts in this way — the parts immediately under the skin elude the injury by their softness, but the structures connected more directly with the bone suffer from the unyielding nature of their support, the little blood-vessels are ruptured, and blood is effused through them. Now, the whole of this blood, whether coagulated or not, is speedily surrounded by coagulable lymph, and the cure is afterwards effected by the absorption of the blood by this lymph, and the sides of the cavity are consequently brought nearer together, until it is entirely obliterated. If nature does not take this mode of reparation, inflammation comes on, the skin gives way, the blood escapes, and suppuration of the cavity follows. These processes being somewhat tedious, and the latter very disagreeable, the surgeon is called on to do something. If, after a few days, the tumour seems sluggish, we may apply a gentle pressure, but not to such an extent as to cause pain. A moderately stimulant or evaporating lotion may be kept constantly on the part to promote absorption, and to repress any tendency to inflammation; this is all the necessity of the case requires, and all you can do with propriety. In some situations, contusions will produce effects peculiar to the part injured, and for which you should be prepared in delivering your opinion on even an apparently trifling matter in itself; for instance, a blow on the forehead, on or just over the eyebrow, may cause loss of sight in one or even both eyes, and ignorant people will be as likely to connect the occurrence of this catastrophe to the want of skill in the surgeon as to the blow, if not more so; for the eye itself may not have been hurt in the first instance.

If an incision be made into a bloody tumour *early*, a dangerous inflammation and fever is excited, but if, after two or three weeks, the tumour should appear to remain without any apparent alteration, it must be opened, and the blood be pressed out. At this period the parts are ready for the adhesive inflammation; you have therefore only to press them gently together with a compress and bandage, and the cavity will be obliterated. There is a reason given for opening these tumours early — namely, to prevent the occurrence of inflammation when it seems inclined to take place; though we may open it from

such a motive, yet, in my opinion, it would be better to let it break of itself, and not roughly to squeeze out the matter or blood when it did break. If there should be a great deal of pain in one of these tumours, you might open it on the third or fourth day. Although the consequences of this kind of injury may at first appear slight, you must be cautious in your prognosis to the patient or his friends, as it may become a very serious accident; for though the skin is not much hurt, the periosteum of a bone under it *may* be, and if the patient be of bad constitution, it will induce a bad inflammation, and ultimately degenerate into a foul ulcer.

## WOUNDS.

*A simple incised wound* was formerly treated in a very rough way, and still, simple as it is, there is some difference of opinion on the matter. You are told by some to leave the wound open until the bleeding stops; for that ever so small a quantity of blood remaining in the wound will interfere with its union; however this be, you cannot, in most cases, prevent a little blood oozing between its lips, and numbers of such wounds have healed rapidly with little or no trouble. You are therefore not to mind all this, but at once close the wound, and that will be sufficient in itself to stop the bleeding, even when so large an artery as the coronary artery of the lips is divided. Having brought the lips of the wound together, you are to take means to keep them so by strips of adhesive plaster and bandages. Now, in many situations, the chief object of your attention, to maintain an easy apposition of the lips of the wound, will be position. Suppose a person is cutting bread, and that the knife slips and inflicts a deep wound between the thumb and forefinger, here you need not apply anything but a little dry lint, bandage the thumb lightly to the hand and leave it so. Sometimes, from the shape or other circumstances connected with the wound, you may find it necessary to apply a point or two of the interrupted suture to keep its edges together. Whenever they can be done without, you will not employ sutures of course, and where you must, you will use as few stitches as possible. You take a ligature of the proper size armed with two curved needles, and pass one of them through the skin from within outwards, you then pass the other through the other edge exactly opposite to the first, and having disengaged the needles, and got the wound brought neatly together, tie the suture moderately, and assist it with compresses and adhesive plaster. In very deep wounds in fleshy parts, another kind of suture called a Quill Suture has been recommended with the view of keeping its sides together at a depth which the common interrupted suture could not act upon; but if compresses at each side of the wound, bandages and position, do not attain the object, other means will be little likely to do so. You are told not to put sutures in muscular parts, and it is a good rule, but there are exceptions to it, as, for example, after the operation for hare-lip.

When, after a day or two, you think everything is going on well, and the wound is healing, its progress may be stopped, and even what had been effected be undone, by the wound getting inflamed, through some indiscretion on the part of the patient, or from some other cause. Here apply emollients to the part, bleed the patient if necessary, and clear out his bowels: perhaps it may be necessary to apply a few leeches about the wound. This you may find it necessary to continue for two or three days; the lips of the wound may have separated a little and formed matter; but your hopes of healing the wound by the first intention are not over—just draw them together and keep them so with sticking plaster, light compresses and bandage, and they will unite evenly and well. Suppose it was a wound to which it was necessary to apply sutures, they may cause it to inflame; the wound will be tense and painful, &c. You will have little to do but cut out the sutures, apply a poultice for a while, and it may afterwards heal very well; but, suppose you neglect to remove the stitches of suture, they will soon make their own way out, the wound will gape, and it must heal by granulation, or *union by the second intention*. Sometimes when a wound, such as a flap wound, is nearly healed, the patient feels a painful spot somewhere in the flap; this is the beginning of the formation of an abscess; when matter is formed it may be punctured with a lancet and the matter let out. In a contused flap wound over a bone, the bone may be exposed, and you of course be unable to prevent its exposure. Here you may hope for the best; for granulations may spring up from the bone which will unite with the under surface of the sound part of the flap, or it will be skinned over. A considerable discharge may come from this wound for a long time, and at length after examining it you find it is owing either to a bit of slough, as a crumb of exfoliated bone retained in the wound, on the liberation of which it quickly heals. Almost any structure in the body likely to come in the way of a cutting instrument, will, under favourable circumstances, heal by the first intention; but we have seen that even in a healthy constitution, a simple clean cut may be interrupted in this desirable process, which, although we call it adhesive inflammation, not only is deficient in most of what are considered essential characters of healthy inflammation in general, but is actually retarded or altogether stopped should those characters supervene from any accidental circumstances. Thus, the little wound made by a lancet in bleeding, generally heals without any sensation of heat or pain, or any swelling, and so will often much larger wounds; but if there be any indiscretion on the part of the patient, either in eating or drinking, or moving the part so as to disturb the dressings or the opposed edges of the wound, and that pain, heat, and throbbing results in the wound, its lips will swell and separate from each other, and adhesion is suspended, at least until these symptoms are removed by appropriate antiphlogistic treatment. But a certain degree of tone or strength in the part is also necessary for an organized union, and without it the simplest cut may degenerate into a foul ulcer.

*Lacerated wounds* are rarely met without more or less contusion ; but a simple lacerated wound will heal as readily as a simple incised one, if the parts can be put evenly together in apposition. A man fell out of a window on a shed, and as he rolled off to the ground, his thigh was caught by a hook, such as butchers hang meat on, and received a large lacerated wound. The man sustained but little injury besides, and his wound, with proper care, healed as quickly as a simple cut of the same size would have done. Lacerated wounds seldom bleed much. I saw a boy whose arm got entangled with machinery, and was torn away from the trunk, and although the blood-vessels and nerves hung in strings from the wound, he did not lose an ounce of blood, and he recovered in three weeks without having a bad symptom. Any structure may be reproduced by granulations, particularly in early life. It has been objected that the colouring matter of the skin is an exception to the rule ; the cicatrix of a wound healed either by the first or second intention, will be of a white colour in the negro for years, but it will be found to become as dark as any other part, in the long run ; and, although the mark of the old wound will, after a long lapse of time be diminished to a tenth of its original size, there will be enough, after it has taken the colour of the surrounding skin, to show that some of it has been really reproduced.

*Punctured wounds* sometimes differ but little from simple incised ones : if made with a sharp instrument, they may heal by the first intention, but if with a blunt one, such as the point of an umbrella, there will be likewise contusion. When the instrument that caused a punctured wound is withdrawn, the parts have a tendency to fall together, so that even a probe cannot be passed any distance into it, and therefore any examination of such a wound to learn its course and extent, would be fruitless. You can form no opinion from inquiring the position of the patient when he received it, or from inspecting the instrument, or by any examination of the wound itself ; for let us do our best we cannot trust implicitly to what we are told of the transaction, nor put the parts exactly into the condition in which they were when the wound was made ; they will have all changed their relative positions, and it is not often of any consequence in the treatment. Suppose a man gets a stab in such a direction, that a large artery may have been wounded, how are we to know that that artery has been injured or not ? The patient or his friends may tell you that on getting the stab there was a gush of blood, and then that it stopped soon — and indeed if the artery *was* wounded, this is the very thing that might happen ; but we cannot trust the information we get from them, for, in the agitation of the moment, they may be deceived themselves ; a small quantity of blood may, in these circumstances, be magnified by their terror, and their not being accustomed to see blood spilled in any quantity ; many such complications occur where it is next to impossible to know the extent of the mischief until some remote consequences, such as aneurism or gangrene, declare it.

A stab by a sharp knife or the blade of a pair of scissors may heal by the first intention or by suppuration; sometimes it will not soon heal; a portion of the external opening is thrown off by sloughing; the discharge does not lessen, and it becomes fistulous in its entire extent. It has been advised to have punctured wounds sucked in order to draw out the coagulated blood that may collect in it; but this is an useless practice, for only that part of it which is very superficial can be extracted by such means. Sometimes in punctured wounds, about the third day, a violent degree of pain and fever comes on; here a dense fascia has been pierced, and matter is forming under it; in this case immediately introduce a probe-pointed bistoury and slit up the fascia to a sufficient extent, and almost directly all these bad symptoms are removed. If the fistula caused by a punctured wound be in a direction favourable to it, you should employ gentle pressure with compresses and bandage along the whole line of its course, and the sides will often be got to unite; but there are of course situations in which this cannot be done, as when the wound has passed directly through a limb; in this case, if, after a time, there should be little or no apparent disposition to heal, stimulating injections should be thrown into the canal: you need not be afraid that they will make their way any where but into the canal; they cannot, for it is lined throughout with coagulable lymph. It is a law in fistulæ, wherever situated, that though their surface does not show a trace of granulations, yet when you convert it into a simple incised wound, granulations will begin to form; you will therefore, where the thing is practicable, cut open the trajet of the fistula proceeding from a punctured wound, lay a little dry lint into it, and it will gradually heal from the bottom; if a fistula runs through a limb almost its whole diameter you may sometimes make a counter opening so as to convert it into a perfect canal, and this will assist its healing sooner or later.

It has happened that a person getting a prick of a pin in his finger will have that finger waste away, and not only the finger, but sometimes the hand and arm, up to the elbow. I believe this is owing to something wrong in the constitution, but I do not know what it comes from; warm applications, as warm water and electricity, often cure it, or check its progress. After you have done up a punctured wound in the best manner, it will sometimes get very painful—inflammation will set in, and the consequent swelling will increase the tightness of the bandages to an insufferable degree, and if they be not speedily removed they may even cause gangrene. What you have to do, then, is to throw aside all your apparatus, subdue the inflammation in the ordinary way, and the case which looked so formidable will do very well, and the wound heal perhaps by the first intention without more trouble.

#### GUNSHOT WOUNDS.

*Gunshot wounds* are peculiar in many things—thus, a ball may

carry into the wound pieces of cloth, a button, or a piece of metal that has been in the pocket; there is always more or less contusion in a gunshot wound; but if a ball passes through a limb, for instance, all parts of that wound will not be equally contused, nor of course be affected by the injury in the same manner: where the ball enters, will be much contused, in proportion to the velocity with which it struck, but where it escaped, will be more lacerated than contused, in consequence of the diminished velocity; the entrance wound will be extremely small, in proportion to the size of the ball, and its lips turned inwards; the exit orifice, on the contrary, will be large, jagged, and its lips protruded. If the ball strikes obliquely, a very slight force will turn it out of its straight course—I believe a fascia will do it, and hence it is that a ball may seem to have gone quite through the chest, or abdomen, or head, when, in fact, it has only glanced round it under the skin; it may come out, or be felt sometimes under the skin just at the opposite side to where it entered. Here, then, are two circumstances which materially influence the nature of a gunshot wound—namely, the greater or less velocity of the ball, and the angle at which it strikes. If the ball strikes perpendicularly to the surface, and courses through parts of uniform figure and density, it will go for some distance in a straight line, but if it strikes at an acute angle it will readily change its direction, at the least change in the nature of the resistance it meets. It will be found of use to carry these facts in your recollection. If the ball, going with the maximum velocity, strikes the body, be it bone, muscle, skin, or any other animal structure, it will contuse the part; it may destroy the vitality of the part at once, or cause mortification in a secondary way. If it strikes a bone with great force it may go through it, leaving a fair round hole, the surface of which will, in part at least, exfoliate; if it goes with less velocity, and consequently strikes with less force, it may splinter it, or cause a longitudinal fracture; and if it goes with still less velocity and force, it may shatter it into several pieces; no matter whether the ball strikes a bone directly or obliquely it must necessarily contuse that bone so as to kill a part of it which must afterwards exfoliate.

Sometimes very little inflammation results from gunshot wounds, and sometimes a very high degree of it, and this will be found to depend mainly on the greater or less contusion the parts have suffered; if much contused the inflammation will be moderate, but if they be but little bruised it will, *cæteris paribus*, run very high; if a foreign body be forced in by the ball, the inflammation will also be severe.

The prognosis in gunshot wounds is extremely uncertain; we are to treat it as a simple contused wound, to lay a little simple dressing on it, and a light poultice over that. The old surgeons thought these wounds were poisonous, later ones gave up that idea, but from something peculiar they supposed to be in the nature of such wounds, from their tendency to gangrene, they thought it necessary to score the wound or to open the whole track of it, in order to facilitate its healing; but if you take two persons who receive similar wounds in

the same part of the body, and treat one of them after this method, and leave the other to nature, they will both, you will find, be well in the same time. The object for scoring the wound was to relieve the congestion which they saw was an accompaniment to gangrene; if, however, a ball enters a limb, and that inflammation and tension of the fascia of that limb takes place, there will be great pain and sympathetic fever, and you must do here just what you would do under similar circumstances from any other cause—namely, introduce a probe-pointed bistoury and enlarge the opening of the fascia as far as may be necessary, and this, almost immediately, relieves all the bad symptoms. It will sometimes happen that a gunshot wound continues to discharge more matter, and for a longer time than you could suppose necessary for such a wound. You may be sure in this case that the discharge is kept up by some foreign body in it, and from this cause a fistula may form in the wound, and the discharge might even continue for two or three years, without the foreign body making its way out; now, what are we to do here? Why, just nothing, as regards the wound—all we can do is to look to the constitution of the patient, to see that it is not too much reduced, which sometimes appears to be the case, from the profuse discharge and the high irritation or suppurative fever; it is useless to go probing and poking such a wound, for neither your instrument nor finger can reach it, the track of the ball is not straight, and even if you were satisfied what the foreign body was, and where it lay, could you in many instances extract it? Should the opening close, matter may collect and form a considerable abscess; here the surgeon may render the greatest service by making an opening where the matter appears to point, or at least where a fluctuation is discernible, for it may be necessary to cut down very deep, and this to prevent the matter breaking through the old wound. In some cases where a foreign body lies long in a wound, and cannot be found or got at, there is one method you may practise with success, and, in fact, you have no other rational one to adopt—it is this, to plug up the external opening; by this means the matter is made to collect, this loosens the piece of cloth, or whatever else is there, and on letting out the well of matter, it will probably be floated out along with it; the best thing to plug it up is a little sponge dipped in a thick mucilage of gum-arabic.

Balls may remain in a man's body for years without doing the least harm; if you go to the Old Man's Hospital you will find many old soldiers there who will show you balls which you may feel in their flesh; they give no inconvenience whatever, except they are in the track of a large nerve, or are so situated as to interfere with motion. A man may be shot in the shoulder, and the ball may take five or six years travelling down the arm, and at length be felt at the wrist. Wherever a ball is lodged, it quickly becomes enclosed in a cup of coagulable lymph: this is very necessary for the surgeon to remember, for by forgetting this one fact, great difficulty is often experienced in operations for cutting out a ball, even by men who are quite well acquainted with the anatomy of the parts through which they cut.

When you come down to the ball you expose about one-third of it, and then it may be turned round and round, but cannot be extracted, except the cup of lymph is fairly and fully divided. Suppose a man is shot in a duel, and the ball can be felt—the patient and his friends are extremely anxious to have it extracted at once, for they suppose a man cannot be safe with a ball in his body; they are even so importunate that the surgeon must sometimes perform the operation on the field, to allay the anxiety of the patient: but it is bad practice, for you excite inflammation in the whole track of that incision, which of course is a bad addition to the first injury; you are forced to do it before the parts are ready for the healing process. It should not be attempted for at least seven or eight days, until the cup of lymph is formed round the ball, at which time it will, in general, heal readily. In gunshot, as in other wounds, there is often a good deal of inflammatory fever; it generally keeps pace with the state of the wound, and it must not be subdued *too much*; it has nothing peculiar in it, as it does not differ from other fevers of the sympathetic or inflammatory kind.

Gunshot wounds of joints, particularly large ones, as the knee, are very formidable injuries indeed. At first they are calculated to lull the inexperienced into a dangerous misapprehension as to the violent consequences that are to follow; the wound is small; swelling trifling; pain moderate, and the motions still easily executed; but after a little time the most violent inflammation shows itself, and the time may have passed for the surgeon to render effectual aid. This is a kind of injury likely to be followed by tetanus. We shall speak of wounds of the great cavities at another opportunity.

There is a set of symptoms attending gunshot and other wounds, of which I have as yet said nothing—they are called *nervous*; for instance, a man gets a wound or a severe compound fracture, and on the second or third day, when you visit him, you find him with his eyes blood-shot, he in a high state of delirium, and remember this man was a stout healthy man previous to the accident; well, in this delirium he has his leg dangling perhaps by a bit of tendon, or a little muscle or skin; yet he feels no pain in his limb; he throws and tosses it about as if it did not belong to him; now, what are you to do here? You are to bleed him most largely; until he faints; bleed him instantly, and from such an opening as you would be almost afraid to make in a vein; if the vein you open does not bleed freely, open one in the other arm, and make him sit up; and then, when you find him getting weak, and a cold sweat coming out on his face, you bind up his arm, and most probably he falls into a sound sleep, from which he awakens quite calm and collected. But recollect you must make an impression the first bleeding. You desire an assistant to bleed him, and he tells you he has done pretty well, that he has taken fourteen or sixteen ounces from him; but twenty ounces at least must be taken, or no advantage will be gained. Now, there is another case which you must carefully distinguish from the former; in this case the wound or fracture, or whatever else it may be, has been suppu-

rating for seven or eight days, when on visiting your patient in the morning, you see his eyes suffused; he has a peculiar cast of countenance; he is talking continually; his fingers have a tremor, and so has his tongue, if you bid him put it out. This is a nervous affection, and is peculiar to hard drinkers; nothing could be more injurious than to bleed *this* man—what are we to do? To give him opium—and you must give it in tremendous doses—as large as sixty or seventy drops of tincture of opium every hour, and overpower him with as much as he wishes of whatever he has been accustomed to drink—if it is whiskey, give him whiskey—if porter, give him porter, and give it in as large quantity and as often as he wishes, until you get him asleep. When a patient in these circumstances gets a sleep, he generally recovers; but he may be several days and nights without closing his eyes. A patient was taken into Steevens's Hospital, and he got the first kind of delirium: he was every day getting worse, and we could not account for it; he had a wife who was very fond of him, and she begged hard to be allowed to sit up with him, and so she did—well, the man died, and when he was removed from the bed, two bottles that had contained whiskey were found concealed under the bed; he never had been a hard drinker, but in his delirium he called to his wife for whiskey, which she gave him as often as he called for it, and contrived to elude the vigilance of the nurse, who was a very proper and careful woman. The delirium of the drunkard does not often end badly; but remember you must make inquiries as to what particular intoxicating drink the patient was addicted to, and to administer only that kind during his delirium; for it is a remarkable fact that none other will have the same power as a remedial agent. At our next meeting we will consider some other of these nervous affections arising from local injury.

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## LECTURE V.

Nervous affections from wounds (*continued*)—Tetanus—Diseases with which it may be confounded—Symptoms—Treatment.

THERE is another very curious nervous affection arising from these injuries. A man, suppose, in going out of a room, pulls the door after him, and gets his finger jammed in between the door and the doorcase. In some days after he feels a kind of creeping sensation going from his finger up his arm, and so to his head, or, as others will say, to their heart; when it arrives there, he is thrown into violent convulsions—these convulsions being of different kinds in different cases, sometimes like epilepsy. Now, it is said by some that these curious affections are owing to a tension of a fascia, but there is no tension in the case I have supposed, for such a case did actually come under my notice. Well—what are we to do here?

First see if there is anything in the wound that could cause all this mischief; for sometimes a bit of gravel or a thorn may be the cause of all the disturbance, and which being removed the mischief ceases. I saw a woman who had an abscess in her thigh; it was opened, and the matter let out, but soon she got this affection—indeed the same evening. I came to see her, and on examining the wound, I found the lips glued together, but there seemed a fulness as if there was something which filled the space where the matter of the abscess had been. I gently separated the lips of the wound, and there I found a quantity of coagulated blood, which I removed, and she had no farther return of the convulsions. In these cases, if you find nothing suspicious about or in the wound, and if the patient be of a full habit, bleed him, and if that does not cure him, it, at least, prepares the way for the next best remedy—namely, opium, which you must give in large doses. It is not safe to give opium until evacuations have been premised.

Where you meet a case in which the patient has this sensation of a creeping up the arm, you will find there is nothing that will so speedily put an end to the affection as the application of a tourniquet on the limb. A woman fell in James's street; she was a large, strong masculine woman. In falling, her arm came to the ground, and she got a sprain; she was taken into Steevens's Hospital, where a relative of her's was a nurse. One of the pupils saw her, but did not think much was the matter with her, and supposed she only feigned to be ill. I, however, saw her shortly after, and though there was nothing very serious in the appearance of the injury in her arm, I thought I saw something peculiar in her countenance, and desired her to be kept in till morning. Well, all that night, her shrieks kept every one in the ward awake. The pain went from her thumb up her arm, and as soon as it got to her shoulder, she shrieked violently. It sometimes went from the shoulder down the trunk, and into the thigh of the same side. Every thing that could be thought of was done, but nothing was of the least service. Well, I recollected having read something about the tourniquet in such cases, and so I applied it to her arm, and immediately the next pain came, and advanced as usual, but when it came to the place which was encircled by the tourniquet, it could get no further. I then removed it, and placed it on the thigh, and when the pain came to that part, it was again stopped, and could not get beyond the instrument. I replaced it on the arm, and for several days there was no return of the pain. I then took it off entirely (it was a little cruel, to be sure), but I removed it, however, and quickly all the symptoms returned with the first violence. It was finally replaced on her arm; she had no return of the pain, and was completely cured by this method alone. A woman came up from the country with violent pains in her thighs; they were œdematous, and very much swollen; every remedy had been tried by her medical attendants in the country, but without avail. I was consulted, and I thought it a fair case for the tourniquet. It was applied, and when

I went the next day, I heard that she had spent a tranquil night, and slept well, the first night's sleep she had had for some time. Her friends thought me a very great doctor for so expeditiously curing what had so long resisted every one else; but in seven or eight days it lost its efficacy, and ultimately failed. The disease, I believe, was in the spinal marrow. The tourniquet, of course, was not kept away tightened on the limb, for it could not live in that state; but she was instructed to tighten it when she felt the pain coming on.

#### TETANUS.

*Tetanus* is another consequence of wounds, and one of much more formidable description than any we have yet spoken of. It has been classed into two kinds—idiopathic and traumatic—and this distinction at once shows that the affection may exist without any local injury whatever. We do not meet many of those idiopathic cases of tetanus in this country, but they do not appear to be at all of such rare occurrence in hot climates.

Systematic writers have placed tetanus among the spasmodic diseases, but, in my opinion, improperly. The involuntary contraction of the muscles in all true spasmodic cases—in fact, in all cases but those of the disease under our present consideration, is but temporary—it may be for a minute or quarter of an hour, as in some cases of hysteria, but then comes a complete relaxation, leaving the muscles as if they had not been so affected; whereas in tetanus, the muscles never do relax—there is a more violent action of them at one time than at another, but during the continuance of the disease they are as hard as a board, from beginning to end—that is, say, for ten or twelve days. This being the characteristic symptom of tetanus, and one in which it differs from all others, we should take it out of the class of spasmodic diseases.

You can never say positively that any description of wound will, or will not, be followed by tetanus. There are some injuries that will more frequently cause it than others, and among these may be mentioned particularly, compound dislocation of the thumb, but I have seen it brought on by so trifling an injury as a mere abrasion of the cuticle over the eyebrow, by the stroke of a light horsewhip. I have seen it follow so apparently trifling a thing as a little gravel getting into a small wound caused by a fall on the knee, and which went no farther than the skin. A nail running into the sole of the foot, a luxation of the great toe, and some wounds received by the bursting of a gun, often cause it. Where there is much laceration of tendinous parts, there will be good reason to apprehend that tetanus will follow. In fact, there is no operation a surgeon performs, even the puncture of a lancet in venesection, that may not induce tetanus, and we are therefore bound to declare in such a case that the surgeon was wholly blameless, and that it was a consequence which no human foresight could see or avert. I do not think that

any one particular period of life predisposes to tetanus more than another. As to the duration of the disease, it varies according to circumstances. If it sets in soon after the injury that caused it, it will run its course rapidly. Thus suppose a man gets a hurt in the morning, and in the evening of the same day tetanus appears, he dies that night. Whenever it comes on so soon as this, the patient invariably dies in twenty-four hours; but you may not meet such a case as this in twenty years.

In these countries tetanus seldom makes its appearance before the sixth day after the injury; it sometimes will not show itself until the forty-second day. The wound may be in any possible state or stage—it may be sloughing, or the slough may have separated, or more generally when the wound is suppurating, and as I have myself seen, even when the wound is quite healed. There is, then, no stage of the local injury in which tetanus may not make its appearance; and neither before, nor during the progress of the complaint, does the wound alter its character in the least, as it does in hydrophobia.

There is a form of tetanus where the muscles of the jaw alone are affected, and this is called trismus, by way of distinction. It is often merely a symptom of some local irritation of a temporary nature, and goes off with the subsidence of its cause.

There are two states or conditions of tetanus enumerated by authors—one, *Emprosthotonos*, where, during a paroxysm, the body is forcibly bent forwards, and *Opisthotonos*, where the body is bent backwards. Now, I never saw a case where the first condition existed perfectly. I remember the case of an old man under tetanus who preferred sitting up in bed, but even in this case the body was not more drawn forwards during a paroxysm than at other times.

The symptoms of tetanus are essentially the same in all parts of the world, but in low latitudes they are much more rapid and severe than in temperate climates. The patient at first yawns frequently, and, it is said, sleeps with his inferior extremities strongly extended, but of this I am not certain. He next complains of a slight soreness in his throat, with some little difficulty of swallowing; but if his throat be examined at this period, nothing particular can be observed in it. Even at this early period there will be observed a peculiar cast of countenance that marks distinctly the commencement of the disease. He next feels a stiffness about the back of his neck, or, as he may call it, a "crick in his neck," which prevents him from turning his head about; yet if you feel the parts externally, you are not conscious of any rigidity of the muscles of the neck. He finds he cannot open his mouth wide, and this is the first thing that generally alarms the patient himself. In this state he may remain for a few hours, or even a day, with little more advance than the increased rigidity or locking of the jaw. The difficulty of swallowing is now very much increased; he begins to feel a pain going from the xiphoid cartilage to the back. The muscles of the

abdomen become rigid, so much as to destroy the natural convexity of that region—to make it flat or even concave, and as hard as a board. The tetanic countenance has in the mean time become perfectly marked, although it is still more striking during each paroxysm. It is very peculiar, and if once looked at with attention, can never be forgotten. The forehead is wrinkled, both transversely and in the perpendicular direction, the eyebrows being drawn in a remarkable manner towards each other: the eyes are not fully opened; the nostrils more or less dilated; and the angles of the mouth drawn backwards and a little upwards. There is generally an expression of uneasiness, and slightly of apprehension; the mouth is not quite closed, and the teeth are seen; the body is sometimes hot and dry, but oftener the upper part is covered by perspiration, at times profuse.

The spasms from the first are very easily brought on, as by speaking, turning in bed, or attempting to drink, but as the disease advances they occur without exertion or other apparent cause of any kind. In the early stage, although the countenance seems to express otherwise, if you ask the patient he will not complain of much inconvenience, but he is afraid to drink, as he cannot do so without bringing on the spasm. In some cases the spasms are excessively violent; I have seen the body curved backwards, so as that the heels have touched the back of the head, and with the force of the jerk, the patient been thrown out of the bed on the floor. The first parts that are felt rigid are, the masseter muscles, those about the fauces, and those of the back of the neck, and from these the hardness descends to those of the trunk, abdomen, and lower extremities. It is a curious fact that the muscles of the fingers are generally the last and least affected of all others. During the paroxysm the breathing becomes laborious, short, and hurried, so much so that you would think the patient every moment in danger of being suffocated; the pulse gets rapid, and the face is bathed in a cold sweat; in about a minute the spasms cease (although, as I said before, the muscles always continue in a state of spastic rigidity); the pulse becomes regular; the breathing continues hurried; the sweating continues; the patient makes efforts to get up a thick mucus which is in the trachea, which he ejects from between his teeth with much exertion and force. If you ask him where he feels pain, he will point it out as extending from the pit of the stomach backwards towards the spine, seemingly following the course of the diaphragm, and this symptom is always present. His appetite is generally pretty good, but he dreads swallowing anything; his bowels are usually confined, and the urine scanty, and sometimes passed with difficulty. It is a very remarkable thing in this disease that the patient never complains of pain, except you question him, and then he will tell you his sufferings are dreadful. He seldom appears to suffer from thirst; his appetite is generally good, but he dreads taking any nourishment, as the effort to swallow anything brings on the paroxysm; he enjoys sleep, but is awake out of it by a paroxysm. Spasm of the muscles.

thrusters the tongue out between the teeth, and it is often lacerated by contraction of those of the jaw. The ordinary duration of tetanus, when it is to end fatally, is three, four, or six days; but I have known a patient to die of it so late as the twenty-first day. The idiopathic cases are in general slower than the traumatic; in the latter the symptoms are most rapid from the second to about the sixth or seventh day. The patient dies apparently by strangulation during a paroxysm.

There is no disease which has been so often confounded with others as tetanus, although the symptoms are so well marked. For my own part, I think the countenance would, in every case, be sufficient to distinguish it from all others. I never saw but one description of face, one tetanic expression of countenance; it is the same in all cases; it is the first thing that gives the alarm, and the last symptom to depart. Even where a patient recovers, and is able to go about his business, that tetanic face remains—I believe it never leaves him. There are other diseases in which there may be some resemblance to a *paroxysm* of tetanus, but none of which the muscles remain, as in this, as rigid as a board after the paroxysm. In tetanus, each paroxysm is *one continued* spasm—it may last for a minute, but it is but *one* spasm, while in hysteria, for instance, it consists of a succession of alternating spasms and remissions, and this one circumstance can leave no doubt of the disease. There is a case which sometimes occurs, where the patient lies rigid and absolutely stiff and immoveable, and he remains in this situation perhaps for three hours; in one instance I saw of the kind, the patient remained in this state for nearly a day, and, on being the least moved, convulsions came on, but there was neither the tetanic countenance nor the same rigidity of muscles. Now, this is nothing more than ordinary hysteria. The pain shooting from the xiphoid cartilage to the spine along the diaphragm, and the spitting up of a thick mucus, are common to hydrophobia as well as to tetanus. I was called on once by the attending physician to see what I was told was a case of tetanus; but when we arrived we found the patient walking about the room, and the doctor and the patient's friends regretted very much that unfortunately I did not arrive during a paroxysm! Of course this could not have been a case of tetanus at all. Sometimes it will happen that a patient recovers from tetanus, at least as far as the flexibility of the muscles is concerned, and he is able to go about, but it is a remarkable fact that those persons often die of affections of their chest. In one case I saw, that of a young man, whose arm had been dreadfully shattered by the machinery of a mill, and who appeared to have perfectly recovered from the tetanus, there came on a cough soon after, and at each cough he threw up about half a pint of fluid resembling exactly in colour the wine that is returned from the bag of a hydrocele which had been injected for the radical cure, and he continued to cough up this for three days, and then died. In another that I saw who had recovered from tetanus, the pulmonary symptoms were those of ordinary phthisis. In some cases you will

read of, called tetanus, you are told that the patient's screams could be heard three streets off. Now, I ask any one who ever saw a tetanic patient, if he ever heard a cry from such a patient that could be heard outside the door of the room he was in? I know *I* never did. In other cases we read of, we are told that the patient took five bottles of Madeira a day, and three ounces of bark. Now, *we* can hardly get a tetanic patient to drink the smallest quantity of any kind of fluid, or to take three ounces of bark through the whole of a protracted case. The same kind of authority tells us that a change is observable in the wound; that the suppuration diminishes, &c. I have paid particular attention to this matter, and never observed any alteration in or about the wound on the coming on of tetanus, except in one instance; this was a girl who had necrosis of the tibia; she was getting up behind a carriage, and a spike ran up into her foot; she got tetanus, and there certainly seemed less of inflammation and suppuration than might in such a case have been expected. I am convinced there is no connection of this kind between the wound and the disease; but those who are of a contrary opinion, place their chief reliance on the *local* treatment, and this is to stimulate it as much and as violently as possible. Well, I have tried this plan, and after exhausting the ordinary stimulants, I invented one for myself, consisting of muriate of antimony, saturated with corrosive sublimate; but I only added considerably to the patient's torture, without doing a particle of good. Cutting off the wounded part has been recommended by Larrey. I was present when Mr. Obrey amputated a limb where compound luxation of the thumb had caused tetanus, but he might just as well have left it on. I myself have lately put it to the test in Steevens's Hospital, in the case of a man whose arm had been greatly lacerated, but he died in the ordinary period, as if nothing had been done—it made matters neither better nor worse.

Well, then, as we have no chance of preventing or curing tetanus by any treatment of the wound, we must turn our attention to the constitutional remedies, and what are they? A good deal has been written on the efficacy of opium—with what justice I will not pretend to say. In one case under my own care, which got well, I had ordered two grains of opium every three hours, and when I saw the patient getting better, I thought the opium was doing wonders, but after ten or twelve days I found, on looking at the pills, that they were no larger than the heads of pins—an apothecary's boy who made them up considered a *grain* to mean the smallest possible quantity, and accordingly made them so small that they could have no effect of any kind. If you give opium, the tincture is the best form, as the patient can better swallow it; you must begin with forty or fifty drops every two or three hours, and increase the quantity according to the severity of the symptoms, so that in time the dose may be doubled. Even in very large doses opium will not cause drowsiness in a tetanic patient, in one case out of five; where it *does* cause it, it is a favourable sign, and you may then increase the dose; but you may give *too much* opium in this as in other cases, and there-

fore when you see the patient's eyes turgid, as if inflamed, when the face, which was before pale, becomes red and bloated, and its vessels turgid, like an attack of apoplexy, you must lessen the dose immediately; if you persist you will kill your patient as certainly with your remedy, as the tetanus would have done. Some say that the bowels become very torpid in this disease—I never saw this, but it may be true, however, and therefore you will look after them, and not suffer them to become too costive, and the best way decidedly to give purgatives in tetanus is in the form of glysters. I recollect when Dr. Hamilton's book came out, it was expected that every disease could be cured by purgatives, and of course they were tried in tetanus; but I always found patients die sooner under this treatment than when nothing of the kind was tried. Musk has been advised; it is, however, too expensive a remedy for hospital use, so I can't speak of it from experience; but from what I have heard of it, I should not be inclined to place much reliance on it. The next best thing to opium is mercury, and the best way to exhibit it is by friction along the spine and elsewhere, in large doses, so as to cause salivation as quickly as possible, for there is not much time to be lost; you should throw it in, so as, if possible, to affect the mouth in twenty-four hours. Two drachms of mercurial ointment should be rubbed in at once along the spine, the limbs, jaws, throat; in fact, every where you can, to accelerate its absorption; every inconvenience must be risked if the medicine is to get a fair trial, and this it may get, especially if the case is not a rapid one. Some caution is, however, necessary: you know a patient could be killed by throwing in mercury too quickly. I do not know whether given in tetanus it causes that affection of the heart which it does in other cases, when given incautiously, but I would be on my guard, however. It is difficult to salivate tetanic patients, and we are told that if we succeed in doing so, they will recover; but I have seen patients die of tetanus while under profuse salivation; it has been found more serviceable in the idiopathic than the traumatic species. Warm baths are advised: now, what are their effects here? Just this—the patient may get a paroxysm while being put into it; but the first time he gets into the bath, he feels very comfortable, and wishes to remain in it—the second time he is anxious to get into it, but he does not express so much satisfaction in it as he did the first time; he does not feel quite so comfortable, and you will rarely be able to induce him to try it a third time; the object sought for by the warm bath is to make him sweat. Dr. Wright advises the very opposite to this—namely, the cold bath, or cold water dashed on the patient suddenly, as an infallible cure, but when you come to his cases you find it was not tetanus he was treating at all; for he mentions, among others, one case where the paroxysm lasted ten minutes; but in locked-jaw a paroxysm never lasted half that time. I doubt if the doctor ever cured a case by the cold bath; and though he speaks of the disease as it is met in a warm climate, I doubt his statements, for Dr. Chalmers, a man who certainly wrote from observation, describes

the disease in South Carolina exactly as it appears in these countries, and I am convinced there is no difference in its symptoms anywhere. I have heard of patients being cured instantly by the first glass of whiskey on Dr. Rush's stimulant plan, but this was not tetanus, for it was never cured *suddenly* by any treatment ever employed; but cases of hysteria, bearing some resemblance to tetanus, often are; whenever it has been cured, the improvement has been so very gradual, as to be a character of the disease.\* A tetanic patient never feels any sensation in the wound that could give him the slightest idea that his sufferings were owing to it.

When cases of common tetanus are to become fatal, we do not find the paroxysm grow less frequent, but they become apparently milder, and, on the contrary, when the patient is recovering, the intervals between the paroxysms are lengthened, but the violence of the last paroxysm that man may have may be as great as that of any of the preceding ones. Sometimes on visiting a patient he tells you he is better — he is now able to put two fingers between his teeth, whereas a little while ago he was able to put one; he *feels* himself better — his jaw can be opened more, and his limbs are more flexible — his friends meet you with a smiling countenance, and every thing is congratulation — now what are you to expect? Why, that the next paroxysm the patient gets, will carry him off — the very next paroxysm will certainly be the fatal one. You had better, in the progress of your treatment of a tetanic patient, keep a bit of wood, or cork, which I think better, rolled in a small piece of linen between his teeth, to allow food and medicine to be introduced when necessary; you need not fasten it with strings or any thing else. It is said that the body of a tetanic patient runs into decomposition sooner than any other; I cannot say how true or false this may be. Tetanus may end fatally before every other part of the body gets rigid, and patients do very often die before the upper or lower extremities, or both of them, have become so.

\* I have read in some non-medical work the manner in which the inhabitants of the Tonga Islands cure locked-jaw, to which they are particularly subject from the difficulty of extracting the barbed arrows they employ in battle. They introduce a painted piece of reed into the urethra for three or four inches, and then push the pointed end through its inferior wall and integuments, and leave it there until it causes great inflammation and pain, at which time the rigidity of the muscles passes off, and the person most generally gets well. The late Mr. Wallace had a case in hospital when I was a pupil. I mentioned the savages' cure to him, and he resolved to try it in a modified form. He introduced a bougie smeared with strong red-precipitate ointment into the urethra, and as soon as the patient began to suffer pain, the muscles of the limbs grew soft beyond a doubt. The same evening I introduced it myself, the same effect followed, and the man had not another paroxysm for an hour and a quarter, although they had been coming on every twenty minutes previously. The patient, however absolutely refused to allow a third application. — *Ed. of Lect.*

## LECTURE VI.

**Tetanus (continued)—Treatment—Trismus nascentium.—Hydrophobia—Symptoms in dog—Symptoms in man—Treatment.—Ulcers—Simple—Purulent—Fungous—Callous.**

WHEN you come to examine a tetanic patient after death, nothing can be seen that could be called a *cause* of what he had undergone, but some of the *effects* may be detected. You may find some of the muscles of the limbs, but more frequently the recti muscles of the abdomen, torn across, and an effusion of blood in some places; the muscles are torn by the force of their antagonists during a paroxysm. Some stress is laid by writers on the effusion of blood or serum found in the brain in these cases, but there is nothing peculiar in this occurrence—it is common to all convulsive diseases; nor is much weight to be attached to blood being found in the spinal canal, as it may be caused by the very act of opening that canal for the purpose of examination. It is a curious fact, that when a case appears in this city, two or three cases will occur at the same time; sometimes there will be two in one hospital, or several will occur in one year, and then we shall hear no more of it for a length of time; the time I have seen most cases occur at once was in a very warm and moist summer.

How should we treat a wound likely to cause tetanus? I believe the very best thing is turpentine dressing—there is certainly something peculiar in the action of turpentine, and in the inflammation it causes, that is salutary, in unhealthy wounds. Of internal remedies, the one on which, from my own observation, I place most reliance, is the employment of sudorifics. I had a case of a man who, in ringing a horse, got a severe hurt in his loins by some awkward check; slight symptoms of tetanus followed, and by getting him into a profuse perspiration, which I kept up for a few days, the symptoms went off. I then left off the medicines, and they returned; on resuming the treatment, they again disappeared, and the man was finally cured. I saw another similar case in a gentleman, who was cured by sweating. Some cases have occurred in this city said to have been cured by tobacco. I have not had myself, however, experience in this method sufficient to enable me to speak decidedly of its utility, but it is certainly one that merits attention.\* Idiopathic tetanus is slower in its

\* The importance of the subject obliges me to state, that I saw two of the cases alluded to above, while I was a pupil in Jervis-street Hospital. They were the patients of Dr. O'Beirne, and one of them at least was seen by many of the first surgeons in Dublin. The treatment was simply an enema of an infusion of tobacco, thrown up two or more times each day, according to the effect produced on the system, and both recovered. I saw with Dr. Davis a third case of tetanus in Summer-Hill, about the same time, which was similarly treated, and which also recovered. It is to be regretted that Dr. O'Beirne has not published the result of his experience of tobacco as a remedy for this formidable disease. I have lately learned from him that he has had some other successful cases.—*Ed. of Lect.*

progress, and more likely to get well than the traumatic ; it is more prevalent in tropical countries than with us, and is characterised by its being ushered in with fever ; the pulse is mostly much quicker in the idiopathic than in the traumatic kind. In every case I saw cured of it mercury was employed, but I cannot say that the cure was performed by the mercury.

There is a variety of the disease before us called *Trismus Nascentium*, or nine-day fits, and which is seldom observed except in the lying-in hospitals ; the nurses that are accustomed to witness it will tell by the very cry of the infant that it is getting, or has gotten, nine-day fits ; when it carries off the infant in five or six hours, it is called by them the "Black Fit," and when in five or six days, the "White Fit." I have examined several that died of this, and have always found that the navel-string, whether it had separated or not, had left an ugly foul ulcer behind it. In the West Indies, when the preservation of the slave infants became of great importance in the eyes of the owners, greater care was taken of the mother during her lying-in than there used to be ; formerly, she was let to remain in the wet and cold, but latterly, everything was kept dry and neat about her, and the navel-string was constantly dressed with turpentine. The prevalence of trismus nascentium diminished in proportion to those improvements in the condition of the mother and child. I have no doubt that trismus nascentium generally, or frequently at least, depends on the condition of the navel-string I mentioned, and the best thing to do is to dress the ulcer with turpentine, and to exhibit mercury by the mouth. I treated one of these cases with strong purgatives on Dr. Hamilton's plan, and it ran its course very rapidly. In fact, it is generally fatal. It is a remarkable fact, that trismus nascentium is rarely met with in the country, and scarcely ever in private practice even in cities.\*

#### HYDROPHOBIA.

The next subject we shall consider is a still more intractable disease than tetanus ; it is called *Hydrophobia*, from what is usually thought to be its characteristic symptom. It is a singular consequence of a particular poison received into a wound, in at least the great majority of cases, although there is reason to believe it may get into the system in some instances without the occurrence of any wound, or even abrasion of the cuticle. We are not without book evidence to prove that this disease can *originate* in man ; but read the cases attentively, and you may convince yourself that they were not really what they were thought to be ; for instance, the dread of swallowing liquids, so much relied on in these cases, is not peculiar to hydrophobia ; it exists in many other diseases just before death. I have said this disease may come on without any wound : as an instance of

\* There is a very interesting paper on this disease by Dr. Clarke, in the third volume of the *Transactions of the Royal Irish Academy*. — *Ed. of Lect.*

this, I saw a young girl, who, while standing at a hall door, had her apron torn by a mad dog that made a snap at it in passing. She got a needle and thread and sewed up the rent, and not having a pair of scissors by her, she cut off the thread with her teeth, and she got hydrophobia and died of it. The disease arises naturally in many animals, as the dog, wolf, jackal, cat, &c. It is certain that a rabid cat will communicate it sooner than a rabid dog; some animals, as the horse, cannot communicate it to man or animals.

When a dog has hydrophobia, you recognise it by these symptoms: — He appears sick, dull, and peevish, but this lasts only for a short time, and he again becomes playful; in a short time he seems to forget his master, but still he stays at home. By-and-by he quits home, and roams about the country; his run is weak, and he goes in a zigzag manner, with his back very convex, and his tail drooping. His nose is observed in this stage to get dry, and as yet he is not afraid of water, but will run or swim through water if it comes in his way; in his progress he avoids other dogs, and what is very remarkable, all the dogs he meets will avoid *him*; although he sometimes bites a good many of them, when he comes upon them suddenly or unawares; he does not go out of his way to bite, but, he will snap at anything in his way; after running a long distance, he often returns home again. Now, a mad dog does not foam at the mouth, as is generally supposed, and his madness can never be known by this circumstance. To the last he may drink — I have seen a mad dog finish a bowl of bread and milk a few hours before he died. As dogs, and particularly young ones, are subject to a great many diseases, some of which may resemble hydrophobia closely in particular stages, and as it will be of the greatest importance to know the truth; should any suspicious symptoms show themselves, we should keep the dog confined, until he either dies or recovers, as the best mode of ascertaining whether he was mad or not.

When a person is bitten it is impossible to determine from the size, form, or other characters of the wound what may follow — they give us no insight into the future consequences.

Every one that is bitten by a dog really mad does not get the disease; the proportion of those bitten is as fifteen to one that gets hydrophobia, so that we may reasonably doubt the efficacy of many of those remedies we hear of to *prevent* the disease. The symptoms of hydrophobia never appear earlier in a man than the twentieth day after the bite; the most usual period is between the thirtieth and sixtieth days; sometimes they do not appear for twelve or even eighteen months. We have accounts of cases where there was a lapse of twenty years between the bite and the appearance of the disease, but they are not to be relied on. After eighteen months have elapsed you may consider your patient safe — there is no fear of his getting affected. The wound given by a rabid animal heals with great readiness, although the patient may afterwards get hydrophobia. When the symptoms set in, and the disease is about to show itself, the cicatrix of the wound shows a disposition to inflame,

and there is generally a kind of creeping sensation running from it up the limb, and so to the trunk; but this is not always so, for in a case lately in the Meath Hospital nothing uncommon appeared about the cicatrix. The first symptoms manifested by the patient are—he passes restless nights, disturbed by troublesome dreams; he becomes melancholy, and fond of solitude; there is a peculiar lassitude about his look and manner; as it proceeds, the senses become morbidly acute; he becomes irritable; the pupil is dilated, and the eye perhaps gets a shining appearance, but of this last I am not quite sure; his countenance exhibits a mixture of coldness and timidity; it betrays suspicion often of those about him, and his eye follows their movements about the room; he feels a tightness or squeezing about the precordia. At length, he becomes affected with spasms, and gets a horror of drinking; if you ask him, he cannot tell you why he does like to drink—he really does not know. This horror of fluids does not always exist. In a case I saw a few days ago the patient drank two or three spoonfuls without much effort. Now, this does not at all depend on the will or determination of the patient, for those with the firmest mind and the strongest resolution will get the cup of fluid near to their mouth, and will even grasp it firmly with both hands, yet when it touches their lips they will suddenly, and as it were, involuntarily, dash it from them to some distance, apparently in the greatest fright, while others of a quite different character will swallow a little without much reluctance. You see, therefore, that the popular notion of the horror of water forming the great diagnostic of hydrophobia, is incorrect; we have the same horror of drinking in some cases of hysteria, in some affections of the brain, in tetanus, &c., while in some cases of hydrophobia, they drink with little reluctance or difficulty.

The senses, I mentioned, become very acute—the patient in general dislikes a current of cool air very much, but I have seen an exception to this, one in which he seemed rather to desire it; sometimes even the sight of a polished surface, or the sound of water pouring from one vessel into another gives him great uneasiness; he will start on the slightest unexpected touch, or at a sudden noise. After continuing in this state some little time, he at length gets into violent convulsions of the whole body, which have their exacerbations and remissions, very unlike the spasms of tetanus, which never undergo a complete remission from beginning to end; the strong effort to eject or get up viscid saliva produces that noise which people conceive to be barking. While in the convulsions it is that bystanders think he is making efforts to bite those about him, but this is not at all the case; he really has no such intention; you might just as well suppose, as he throws his arms about, that he is endeavouring to strike those near him. From this mistake, however, as to his intentions, it was formerly the custom to put the patient, in this stage, between two beds and smother him, from the apprehension of his biting any one: there is no excuse for such a practice now; and indeed I very much doubt if they even did bite, that there would be any case found on record to warrant us in fearing the disease would

be transmitted in this way to another person.\* The paroxysms in the disease last longer than those in tetanus: the patient has the same pain shooting from the xiphoid cartilage towards the spine, and the same viscid mucus in the trachea that we observe in tetanus; unlike tetanus, when the spasms in hydrophobia cease, there is a perfect relaxation of the muscles; the patient looks mild and timid, his eyeballs are often suffused, and you not unfrequently find him walking about the room, and would not think from his appearance that anything particular was the matter with him until you see him get into convulsions; he mutters to himself, but you cannot tell what he is muttering, nor can you get him to tell you—he seems to have a dislike to tell, but if you speak to him it rouses him out of this, and he speaks rationally. The pulse is extremely variable; it is of course quickened during the paroxysm—at length, he dies quite calm and apparently exhausted. There is but one thing in our power to prevent this disease, and that is excision of the bitten part, and it must be cut out completely; but this, from the situation and other circumstances of the wound, is sometimes difficult—but no matter, it must be done—as, suppose, the hand is bitten quite through, and here it will be a terrible operation. How soon after the bite may the operation succeed? Why, I have known it succeed in seven or eight days after the bite. I remember three stable boys at Howth who were bitten by the same dog at the same time; two of them suffered the part to be cut out, and they escaped, the third would not submit to the operation, and he got hydrophobia and died. There is another case recorded where the part was cut out seventy-two days after the bite, and the patient recovered, but we cannot be certain that he would have had the disease at all if nothing had been done for him. It has been recommended to have the wound sucked, but this can be of very little, or indeed no use to the person bitten, and, as we have seen, the person who sucked the wound would very much endanger his own safety. The next thing advised is the application of caustic to the wound: if used it must be of the very strongest kind—something that kills the part at once, without requiring to be rubbed for a long time, as some of the milder kinds do: use the pure alkali, or sulphuric acid, or, what I think by far better than either, butter of antimony. No constitutional treatment can be relied on. Bleeding is of no manner of use; at the first bleeding the patient is probably relieved, but the second always makes him worse, or at least he always gets worse after the second bleeding. It has been advised to make the patient run about in this disease, and this advice had its origin in a case in St. Thomas's Hospital, where the hydrophobic patient escaped, and ran through several streets before he was stopped, and he was thought to be much better after it, but his improvement was only temporary. There are sufficient grounds for the belief that an animal, not himself affected with hydrophobia, can nevertheless give it to others by

\* See experiments of Magendie and Breschet on this point.—*Ed. of Lect.*

biting them. The elder Mr. Dease used to mention a circumstance, when I first heard him lecture, of an ostler who was playing with his dog—he used to hold out his arm for the dog to leap up to it, and when he did so he used to shake him off again: the dog, however, got vexed, and bit the man's arm, and the consequence was, the man got hydrophobia, although the dog was not mad, nor did he ever get mad, for he was tied up to ascertain the fact. In the country sea-bathing has been practised with cattle that have been bitten by a mad dog; they are brought once or twice a day to the sea-side, and are made to walk through it for some time, and apparently with considerable advantage. I think it bids fairer than most general measures to do service in the human subject, yet it has been tried, and persevered in for six weeks, but the disease supervened, as if nothing had been done. During its employment every effort should be made to tranquillize the patient's mind by giving him confidence in its success. Mercury pushed to salivation has failed repeatedly; arsenic, and in fact every other thing tried for a cure after symptoms had set in, have been totally useless, and there is obviously little reliance to be placed on any of them as preventives.

The notion that dogs only get mad in the heat of summer is not correct; they are quite as liable to it at any other season as in the dog-days. I am informed that spring is the time dogs are most subject to this disease in Scotland, and it is accounted for in this way. A number of cattle are annually left to perish during the severity of the winter, and it is supposed the dogs over-eat themselves, which causes a tendency to the disease, but whether this be correct or not, I cannot say. There are some places which appear entirely exempt from the occurrence of hydrophobia, as the leeward West India Islands, and other places. In Antigua there has not been a case of it known for fifty years, and this does not depend upon the latitude of the country. Other animals besides dogs and cats can communicate hydrophobia—for instance, the racoon; the late Duke of Richmond died of the disease from the bite of a rabid fox. In Paris a remedy has been proposed for the cure of hydrophobia—viz., injecting medicines by the veins; but their injection will be found as dangerous as the disease itself—they will kill as certainly, though in a different manner. I consider any injection into the veins, except of blood, mortal.

#### ULCERS.

When a wound does not heal by the first intention, and when granulations arise in it, it is called a *simple purulent ulcer*. An ulcer may exist in any structure, and on any part of the body; but some tissues are more frequently its seat than others, or have seemingly a predisposition to ulcerate; so also have some diseases a tendency to produce, or end in ulceration. Ulcers are met with under a variety of forms; and I can assure you there are few things you will see in your hospital more worthy of your particular attention than the discrimination of one kind of ulcer from another, or becoming fami-

liar with so much of their more characteristic features as may guide you to their proper treatment. An ulcer is a secreting and absorbing surface; it forms pus either of the simple kind, or of a specific quality, capable of producing a similar disease in another person, or of some peculiar morbid character not of an infectious nature. It will absorb readily — for instance, if you treat an ulcer with red precipitate, you may salivate the man; if it is such a sore as you would deem proper for arsenical preparations, and that they are not applied with sufficient caution, you may poison him. A simple ulcer in a healthy person is attended with scarcely any pain; its surface is covered with small, reddish *granulations*, and it discharges a moderate quantity of mild unirritating pus, of a creamy colour and consistence, and without any offensive smell about it. The manner in which such an ulcer heals is this: there appears a pearly appearance about the margin, and you soon perceive that this is a new cuticle which is covering it; this appearance gradually proceeds inwards towards the centre of the ulcer until the whole is covered over. But this is not all — after it has been healed some time, you observe that the cicatrix that is left is not at all so large as the ulcer had been; there has been therefore a *contraction* of the circumference of the ulcer likewise, which materially assists the healing; no matter what the form of the wound, or of the ulcer that results from it, it contracts in every direction, and will be found diminished as much as two-thirds of its entire circumference in three weeks. If this simple ulcer be left alone, it will heal of itself; our object in the treatment of it is to exclude the air from it, and for this we employ ointments, which, from their greasy nature, perfectly answer this intention; if the ulcer be left to itself, nature will effect the same purpose, by forming a crust over it by the drying of the discharge. Now we may assist another of the means nature employs to heal this ulcer — that is, the contraction of its granulations; and this we do by applying strips of sticking-plaster in the manner recommended by Baynton, which draw together the edges towards each other, and keep them so. But suppose the ulcer is on the leg, as encircling the limb thus would constrict it partially, we prevent the ill effects of such a partial constriction by putting a roller on the whole limb, beginning at the points of the toes, and carrying it in a spiral manner, and as even as possible, up to the knee. Simple ulcers may be caused in a great variety of ways: thus the surface of an anthrax, after its slough has been discharged, will become a healthy-looking, simple, purulent ulcer. A venereal chancre does not always heal under the influence of mercury, even when the cure of the disease is perfected, but may quite change its former characters, become this simple ulcer, and heal under the simple treatment of such an ulcer arising from any other cause. Ulcers of any kind on the extremities will be retarded, or entirely prevented from healing, if the limb be œdematous. You will therefore attend to this complication, and treat it with frictions, rollers, and a horizontal position, simultaneously with your local treatment of the ulcer itself.

The simple ulcer, in any stage of its progress, may change its character, and become what is called a *fungous ulcer*, by which is meant, when the granulations have become large, pale, and obtuse, and rising above the level of the surrounding skin. The change is caused by some local or general debility, is unaccompanied by pain, and, not unfrequently, is owing to the unnecessary use of relaxing poultices and stupes to the healthy ulcer which preceded it. It is, however, the simplest vitiation from the simple ulcer, and is easily cured. The granulations are to be touched with lunar caustic, sulphate of copper, or some other mild escharotic — not with the view, mind you, of *eating down* the granulations, but by the stimulus it gives to their absorption. Gentle pressure, on Home's plan, should afterwards be kept on the ulcer, to keep down the granulations. If strong caustics be employed to destroy those fungous granulations, they will readily slough away, but nothing is gained, for they will spring up again, perhaps larger and more troublesome than before. While an ulcer is in this state it shows no disposition to heal.

A *callous ulcer* is one the edges of which are not raw, but are covered with cuticle: the surface of which is too smooth, and the discharge from which is thin, and unlike pus; its edges are raised above the surface; the whole ulcer is extremely indolent and insensible, and the patient, in cleaning it, uses it very roughly, without seeming to feel more than if he was rubbing a piece of sound skin. By applying red precipitate to the edges, they will be soon lowered, and granulations will then spring up in three or four days. So long as those high callous edges remain, the ulcer will not show any tendency to heal.\* There is no ulcer requires Mr. Baynton's plan of treatment so much as the callous ulcer. His mode of proceeding is this: — He gets some strips of good sticking plaster, about an inch wide, and, applying the middle of one of them to the leg on the opposite side to the sore, he brings them forward, drawing the edges of the ulcer towards each other, and crosses the two ends of the plaster over its surface firmly and evenly. You will find it necessary to have an assistant to draw the edges to one another with his fingers, while you apply the adhesive plaster. In this way you apply successive strips until the entire sore is covered with them. When you apply the strips of adhesive plaster on it, it must be of sufficient firmness to give pain: but this will generally go off in half an hour, and in three or four days the edges will be gone. The straps may be left on for three, four, or even eight days, and if, before applying them, you cut a few holes in them, the discharge will be allowed to escape, and you can wash the ulcer by letting a stream of water play on these holes; you, of course, remedy any œdema in the limb by rollers and rest. Baynton's plan will not answer with ulcers over a bone and adherent to it, as on the shin: you may, to be sure, draw the edges together until you make them overhang the

\* I have found the scalpel, in every respect, better than escharotics or caustics for removing those callous edges.—*Ed. of Lect.*

ulcer ; but you do not, by these means, diminish the *surface* of the ulcer in the least. In these cases you must use stimulating dressings, but not as it is usually done in the hospitals ; for legs that have been constantly exposed to the weather, or perhaps daily immersed in bogs, will bear much more than the delicate ones you will meet in private practice. In every case where you sprinkle an ulcer with red precipitate, you must put pledgets of dry lint over it to absorb the discharge, or the precipitate will be carried out with it, and excoriate the neighbouring skin, and cause three or four ulcers instead of one ; the pressure of these pledgets will also assist the healing of the ulcer. It has been recommended to change the stimulating dressing, as soon as you have brought a callous or vitiated ulcer to the simple state, for those of the absorbing kind. This may sometimes be necessary, but very seldom so, for the continuance of the stimulating dressing will heal the simple ulcer ; however, if you do make this change, you are to cut narrow slips of simple dressing, and lay them on the edges of the ulcer where they are inclined to heal, and then apply *lapis caleminaris* (impure carbonate of zinc) or any other absorbent powder on the centre. The stimulant dressings, as well as the absorbent, should only be applied to the hollow of the ulcer.

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## LECTURE VII.

Ulcers (*continued*)—Irritable ulcer—Varicose ulcer—Hospital gangrene—Anthrax—Furunculus—Mammary abscess.

THERE is another variety of ulcer met with, the surface of which is of a greenish colour, and the discharge from which is of a greenish hue — this is the *irritable ulcer*. This is sometimes a very perplexing kind of sore ; and here I would recommend you to read Underwood's book on Ulcers of the Legs ; it is excellent on this and the callous ulcer. Nothing, positively, is so interesting in all surgery to a junior pupil as the treatment of ulcers. He should dress them with the greatest attention, and observe every appearance and change with care, until he becomes so familiar with them, that he can predict, with certainty, on looking on an ulcer, what will happen in its progress. If your patient is walking about with an irritable ulcer, you may try the soothing plan with it ; but the soothing treatment will not answer always. I have seen somewhere a mild poultice almost set the patient mad with pain. I at first thought it might be owing to the kind of poultice used, and have, in consequence, changed them repeatedly, but found that whatever poultice was put on produced the same effect, which convinces me that it is not the composition of the poultice, but something in the nature of the ulcer which did not admit of the soothing treatment. I think the term irritable ulcer a very vague one, for any ulcer may become irritable,

and with almost any appearance. There is only one description of ulcer I have ever met with, that really deserves the name, and which is not described in books ; it is this : — It generally comes on the outer side of the ankle, upon or a little above the external malleolus ; it is a small ulcer, sometimes not larger than the point of the finger ; it never goes entirely through the skin ; it has no edges, nor is there any inflammation about it ; it discharges good matter, and has nothing very grave looking connected with it ; it is excessively painful, however, and you examine it all over in vain, to say why it is so. You really can see nothing to account for it, in its appearance at least. Now, if you have soft, mild applications, such as poultices laid on it, you will set your patient mad with the pain. You must treat it in directly the reverse way. Rub over its surface with a pipe of lunar caustic, and dress it with a solution of the same, under which the pain will cease, and the ulcer heal.

We sometimes meet with an ulcer, the edges of which considerably overhang the surface. You think, on looking at it, that you see the extent of it, but on introducing a probe under these edges, you find that the ulcer extends a good way under it. This is an extremely tedious kind of ulcer, and will keep a patient longer in an hospital than any other I know of. I believe the best application to it is nitric acid.

Now, are you, without hesitation, to undertake the healing of any one of these ulcers that you may be called to see ? You are not — it would sometimes be a very dangerous thing to succeed in. It does not at all depend on the length of time the ulcer has existed ; that it has been a length of time there, discharging, is not at all a reason why you should not attempt to heal it ; but if the patient has an affection of his lungs, it is not necessary that he should have a violent cough, with great expectoration ; but if he has a thickness of his breathing, and that you discover clearly a tendency to organic disease of his lungs, and that you set about healing his ulcer and succeed, as you may do, you will be, as my old master used to say, his executioner. Don't meddle with it, or you will accelerate his pulmonary complaint, which, with the running ulcer, might have remained long quiescent.

*Varicose ulcers* depend so much for their origin and continuance on the morbid state of the veins of the limb, that no mode of treatment will succeed in curing them short of curing the varicose veins themselves, and when that is accomplished, the ulcer will heal immediately without further trouble. A varicose state of the veins of a limb is not a simple distension of those vessels, nor does it invariably arise from causes that might distend them by interrupting the current of the blood through them, such as pressure of the gravid uterus on the iliac and other veins might be supposed to do, but is a thickening of their coats, probably the result of chronic inflammation, and an enlargement as well in their length as in their circumference. It is remarkable that the veins in some situations seem much more prone to the disease than in others ; for instance, we see a hundred

cases in the lower extremities for one in any other part of the body ; but what is of more importance to know in a practical point of view is, that the deep-seated veins of a limb — the *venæ comites*, as they are called, are rarely, if ever, affected with varix.

For the cure, or at least alleviation of those varicose veins, pressure by means of rollers, laced stockings, &c., have been recommended, but they do not entirely answer. Certainly while they are worn little or no trouble, inconvenience or danger, will occur ; but the relief afforded by such means is of a temporary nature ; the disease remains as before their use, and is ready to assume its worst form if they are left off for a day. Knowing this, other means have been had recourse to, to effect a permanent cure. Mr. Home advised tying the saphena vein, where it runs on the inside of the knee, and many cases were given where the operation was practised with success ; they were all favourable. At length one surgeon had the hardihood to publish a case where the operation ended fatally, and directly several others, with similar results, were made known by different people, and thus the practice was found to be fraught with so much danger that it seems now to be entirely laid aside. I had one case myself, where the patient got bad typhoid symptoms after the operation, and died. But there is an objection to Home's operation arising out of its inefficiency, even where the patient escaped with his life ; it is this — if you tie the vein ever so well, you will find that in twelve months that vein will be as pervious as if it never was tied at all. From the danger attending the operation on this vein, and from the fact that phlebitis is not by any means so much to be apprehended from operations on the smaller veins, Mr. Brodie conceived the idea of dividing the latter, as those on the instep. The object of all these operations is to obstruct the passage of the blood through the superficial veins, and thus to direct it through the deep ones which are not observed to become varicose. Mr. Brodie introduces a particular kind of sharp-pointed bistoury, under the skin, at some little distance from the vein, with one of its sides next the skin ; it is then pushed on between the vein and the skin, the edge of the knife is turned to the vein, and a division of it is made by withdrawing the knife from the opening by which it entered ; there is thus no aperture in the integuments opposite where the vein is cut. This operation is at least free from the danger incurred in cutting or tying the large trunks.

For the purpose of effecting a permanent cure of varicose veins by simple pressure, I contrived an instrument which I would call a vein-truss ; it consists, as you observe, of a spring, something like that of a truss for hernia, but shaped so as nearly to encircle the upper part of the thigh ; it is furnished with a pad made to press on the saphena vein, just where it is about to enter the femoral vein. This instrument must be put on before the patient gets up in the morning, while in the horizontal position ; for if he gets up before it is applied he will certainly be uncomfortable all the day afterwards. I have tried the efficacy of the instrument with decided advantage. A lady who

was near bleeding to death from the bursting of a varicose vein in her leg during pregnancy, had the vein-truss applied, and she got such relief that she sent up to town for another to be applied to the other limb. An apothecary in this city, whose business obliged him to be very much on foot, and who did not like driving about in a gig, applied to me for relief for varicose veins, that had become so troublesome as to disable him from walking almost any distance ; he had the vein-truss applied, and he experienced from its use complete relief. In pregnant women I found it particularly useful.

When a varicose vein bursts, it is by a hole of very minute size ; just before it bursts it is merely covered with cuticle, and as the giving way of this causes no pain, the patient is at the moment unconscious of what has happened ; he may be walking in the street, and he feels his foot damp, which, from the dryness of the weather, perhaps, surprises him ; he takes off his boot and finds a quantity of blood in it, and is some time before he discovers the orifice from whence it came, which indeed may not be larger than a pin-hole. Now, if you are called in at such a time, you find it very easy to stop the hemorrhage, provided you go the right way about it. If you put a large pledget over the orifice, you will not stop the bleeding. Just take a small bit of lint, moisten it with oil of turpentine, and lay it on the little opening ; over this put a somewhat larger one, over this a bit a little larger than the last, and so on until you make a pretty thick graduated compress, as it is called, and then apply a rather tight bandage over the limb. When you apply the first bit of lint keep it there with the pressure of your finger for a few minutes, until the blood coagulates, and then put on the remainder. When hemorrhage takes place from varicose veins in a pregnant woman, it is always from some very small branches about the small of the leg, and the floor may be drenched with blood, although the opening from whence it came may not be larger than a pin-hole.

#### HOSPITAL GANGRENE.

There is another condition to which ulcers or wounds are subject — which is called *hospital gangrene*. There are two very different states of an ulcer which have been confounded under this name ; for instance, when you see an ulcer this morning, suppose, you may think it is going on very well, but on seeing it next morning the patient tells you that he passed a bad night, and that he felt much pain in his sore. You see that the healthy granulations which were there yesterday are all gone ; the edges appear to overhang the ulcer, and on raising them you observe several black spots ; the edges are inflamed. The entire of the ulcer, however, is not always engaged, for perhaps three-fourths of it will go on to heal, or it may be entirely covered with the disease, and the discharge is of a bad kind — but this is not the worst state of the ulcer. It is one very nearly allied to hospital gangrene, but is really very distinct from it, as it may go on, and the constitution of the patient remains *unaffected*.

In the case I have described the best treatment is the soothing one—such as fomentations with chamomile, mild poultices, &c.; the stimulating plan generally answers best where the appearances come on in distinct patches. Now, if you apply red precipitate, you will form a favourable opinion next day if you find it dry and forming a crust, as it were, over the surface of the ulcer; but if you find the precipitate has been washed away by the discharge, you may be sure that that sore will extend; you may be certain that if it once begins to improve, it will continue to do well. When the ulcerative process extends over a large space it may become hospital gangrene, or sloughing ulcer, or phagedenic ulcer—for it has all these names; but it occurs sometimes without wound or ulcer; it may begin as a small pimple, which, before it is the size of the head of a pin, takes on the sloughing characters of hospital gangrene.

Hospital gangrene is just this—when an ulcer does not yield as much purulent discharge as would appear sufficient for its size—when the patient complains of having passed a restless bad night—the discharge of a bad description—the lint, which used to come off freely, now sticking to the sore, which has become flabby, ash-coloured, and always has more or less of that angry redness round the edge that is observed to surround parts falling into gangrene. The ulceration is, suppose, confined to the skin, but the sloughing is not so, for it quickly destroys the subjacent cellular substance, the fascia below it, and also the muscles; the latter parts having exactly the appearance described by Thompson, that of a wet bladder filled with a fluid, the proper texture of the muscle being entirely destroyed. If, suppose, the disease begins in a venereal bubo, it will extend in every direction, and you will see the vessels, muscles, &c., as perfectly dissected as you would in the dissecting-room, excepting that they will not be of the natural colour; the cellular and adipose membrane will all have sloughed away. But no structure will be long free from its ravages; it seizes on the arteries—if the artery that sloughs be large, as the femoral, of course the patient dies instantly on its giving way, but sometimes smaller vessels are destroyed, and then the patient dies of repeated small bleedings. Hospital gangrene will make its attack on any wound or ulcer.

There was a family in this city that lost several children by hydrocephalus. Dr. Percival was consulted, in hopes he might think of something to overcome this unfortunate tendency, as it seemed, to the complaint; he had faith in issues to effect this, and accordingly ordered issues to be put in all the surviving children's arms, which was done. After some time one of the children complained a good deal of pain in his issue, and the surgeon who had put it in was sent for; he examined the part, and told the parents that the child had complained without reason, for that he saw nothing particular to cause uneasiness in the ulcer. However, the symptoms increased, the child got worse, and in short, died of the gangrenous ulcer. Some time after this I was consulted by Dr. Percival. I was asked if, under the circumstances, I would venture to put an issue in the arm of one of the

children who had not had one before inserted? I said I would, if they promised that they would send for me on the slightest change taking place in the issue. This they promised, and it was therefore inserted. About three months afterwards I was sent for to see the issue, and found the surface of it covered with that ash-coloured appearance and other characters of hospital gangrene that I have described. I removed the pea at once, put mild dressing on it for a few days, the pain and angry appearance subsided, and I was then able to put in the pea again. I was sent for ten times at various intervals, on similar occasions, and always prevented serious mischief by a similar line of treatment. I am quite certain the child would have died, as the other had done, if the issue had been neglected on any of these occasions.

The discharge from a part affected by hospital gangrene is extremely acrid: it will sometimes produce pimples wherever it touches, and these frequently take on the character of the original ulcer. It is difficult to say how far this is a constitutional or local disease, for sometimes the constitutional and sometimes the local symptoms take precedence. In the beginning the constitutional symptoms are very light and trifling; the tongue is a little white at first, but soon becomes of a bilious complexion, and lastly, brown or black; the pulse has never, in any stage, the full inflammatory feel, and towards the latter stages it becomes miserably compressible; the face has always something peculiar in it, which shows things are not going on right — it has that greasy appearance that we see in some other instances.

Is there any symptom or appearance which would authorise one to say decidedly, "this man will recover?" Not one. I have left a man at night as bad as he well could be, and next morning I learned he had had a tolerable night's rest — everything else was altered for the better, and from that time he continued progressively to improve until he quite recovered. While there is any life remaining I would never despair in these cases; for, in the morning after a good night's rest the redness of the edges may be going or quite gone, and he recovers. From the army surgeons, who have many opportunities of seeing this disease, it would appear that it comes on all at once, attacking a number of men at the same time. From what I have observed, there have been few cases in this city, and in an hospital only two patients, perhaps, out of a hundred, may have it at the same time, and this induces me to think that hospital gangrene is not contagious. Whether or not it is capable of being communicated from one person to another, by using with a simple sore the sponge that had been cleaning an ulcer affected with this disease, I cannot take upon myself to say. It would be a cruel experiment to put it to the proof; but I can well conceive that a number of men in the army would be seized with hospital gangrene at the same time, without any contagion being in the case at all. Men, suppose, under the calamity of a retreat after being defeated, eating little or unwholesome food, drinking a great deal, and suffering every hardship, it is

no wonder that being placed in those circumstances they should get this ulcer, and that many should get it at the same time. Sometimes a compound fracture, or a gunshot wound, will put on very much the appearance of hospital gangrene, but on the expulsion of a spicula of bone in the one case, or removing an extraneous body in the other, the ulcer heals. Hospital gangrene, therefore, cannot always be a constitutional disease, for here it obviously arises from a perfectly local cause, the removal of which removes the disease. In the commencement of hospital gangrene the patient says he is pretty well, and, looked at superficially, appears so; yet if you examine him closely you will find his pulse quicker than it ought to be—his skin will have a harsh kind of heat, but you may not perceive this when you first lay your hand on him; you must keep it there for some time; but these symptoms may depend on other causes.

What are the constitutional remedies for this disease? Undoubtedly, the very best thing to be given first is an emetic; you may keep the bowels open, but much purging is to be avoided; you must take the patient off animal food—give him none at all of it; let him have cooling drinks, particularly acid ones, and remove him into pure air; bark does no good in hospital gangrene; wine they will not take, although it is a novelty to many of them; you may get them to take one drink of it, but they will take no more of it for you; they always prefer bottled ale or porter, and it is much better for them. Opium has been recommended, but what effect does it produce? None whatever; even if you begin with fifty drops of the *tinctura opii*, the patient feels no effect from it; it neither lessens the pain nor gives him sleep. As regards the local treatment—the soothing plan sometimes does good, as stupes with chamomile or poppy-heads. I think the carrot poultice, or the fermenting one, is better than the common one, as it removes the fetor; sometimes the stimulant plan does best with the ulcer, such as lotions of muriatic acid or vinegar; applications in the form of powder have sometimes appeared to be of service, such as rhubarb, bark, charcoal, &c.; so also have a solution of gum kino in claret, oil of turpentine, &c., but I suspect accident may have done a good deal in many of these cures, for no one can tell by the appearance of the patient, or that of his ulcer, whether the morbid characters of the latter may not change entirely in twenty-four hours. The chief object to be kept in view, in the treatment of this disease, is to take care of the constitution. The disease ought not to be called hospital *gangrene*, for it differs materially from gangrene, properly so called.

## ANTHRAX.

*Anthrax* is the next subject we shall have to consider. We saw, in other instances, gangrene or sphacelus following inflammation, and resulting from it as a cause, but the present disease is one where mortification is the first thing that happens; it affords, then, an excellent example of *gangrenous inflammation*; an inflammation which cannot be made to end in resolution, which will not admit of adhe-

sion. Although no period of life can be said to be absolutely exempt from its occurrence, yet children are very rarely subject to it, as also adults until after the meridian of life; it rarely effects the front of the body, but I have seen it on one occasion on the chin near the lower lip, and extending down the neck. In the commencement of anthrax the skin feels hard to the touch — it is red and painful; the redness is not a healthy one, such as is seen in phlegmon, but of a dark brownish hue; the swelling is flattened and does not point — that is, there is no part of its surface more soft and red than another, the entire being raised above the surrounding skin; it may not exceed the size of an orange, but it often is as large as a dinner-plate. As it proceeds, a small opening forms, after fourteen or fifteen days, then another, and so on, until there may perhaps form six or eight or more of them, and from these there may ooze, on pressure, a little of a something like pus; on looking into them you see nothing like a cavity, but a quantity of deadened cellular substance of a whitish or ash-colour, and a little good pus. These openings run into each other, the skin between them having become thin, smooth, and of a bluish colour, and finally ulcerated. If the case is to end badly, the inflammation extends, and the patient dies of the long continued pain and fever. The fever is of the low typhoid kind, or something between that and the fever of erysipelas. It sometimes is produced by the irritation of a blister; making its appearance when the blister is healed. As soon as ever you see the disease you must make an incision from one end of the tumour to the other; it is not merely the hard brawny skin over the dead cellular membrane you are to divide, but you must cut through the *margin*, and so a little way into the sound part, otherwise you will not liberate the entire slough, and if the next day you find your incision has not been made to the necessary extent, don't hesitate to enlarge it.

The necessity of cutting beyond the margin of the complaint is this: — This skin itself is diseased, but differently from the cellular membrane under it: it is thick, rough, and without the elasticity of sound skin, so that although your incision be seven or eight inches in length, the lips of the wound will not separate more than half an inch asunder. The next day, however, you will find the wound gape more, and from day to day you find them shrinking from absorption, until scarcely any remains, and you have a fair round ulcer by the time the slough has separated; this, by-the-by, is often a tedious process, but the constitution has been improving in the mean time, so that you need not be impatient. The operation you perform to liberate the slough is not always free from danger. I knew one patient to die of erysipelas caused by the incisions made into an anthrax. Now, poulticing may sometimes be substituted instead of the operation in very old people, but it should very rarely be trusted to, as the cure is very slow, and the constitution has to bear up so much longer against the pain and fever. You must in all these cases take care of the constitution; in some, as in healthy middle-aged people, the fever must often be treated on the antiphlogistic plan, but in the majority, you must give wine. After the operation apply a large poultice over the

part; when the slough separates, the granulations of the large ulcer left, have a glassy appearance, but they soon become healthy, and the subsequent improvement in all particulars is very rapid. Secondary anthrax may form near the seat of the primary one, but it is seldom so large or troublesome as the first had been.

*Furunculus* or boil very much resembles anthrax. Like it, it consists of deadened cellular membrane under an inflamed skin, but its course is attended with exquisite pain and soreness on pressure. It is of a conical shape, with a white top, is more frequent in young subjects, and often several of them appear at the same time or in succession. Taken at the earliest period it can very seldom be dispersed; a few times it may be by smart purging, but leeches and other things of that kind are of no use; the fever is of the inflammatory kind. The treatment is exactly the same as that in anthrax—viz., an early incision through the margins, from one end to the other.

#### MAMMARY ABSCESS.

The various changes that occur naturally in the condition of the uterus are not unfrequently accompanied by sympathetic affections of the female breast, either natural or morbid. Some of the latter may be considered at present, others when we shall have to speak of particular diseases that the breast is liable to, in common with other parts.

There is one affection of the breasts of women which mostly occurs after parturition, but sometimes before it, called *mammary* or *milk* abscess; generally occurs within a month after parturition, but you will sometimes meet it coming on three months after. It is ushered in with a rigor, which is succeeded by heat, sweating, thirst, and other febrile symptoms. There are many circumstances which may induce a rigor in a female at this period, but if it is to end in mammary abscess, you will find, on examining the breast, that the patient is able to point out one particular spot which is very painful, though nothing at the time may *appear* to show what is to follow. If the disease be left to itself, it is very slow in its progress—it will take perhaps a fortnight or three weeks to come forward. Even when it bursts, and the patient says she is better, and really seems to be doing very well, the painful distension relieved, and the fever greatly subsided, you will have to suffer the disappointment of finding another abscess forming in some other part of the gland, or even in the other breast.

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### LECTURE VIII.

Mammary abscess (*continued*)—Treatment.—Paronychia—Varieties, Symptoms, Treatment.—Injuries of the head—Contusion and wounds of scalp.

WHILE this suppurative process is going on, the secretion of milk is

diminished, the infant's endeavours to obtain nourishment give considerable pain, not only in the affected breast, but even drawing the sound breast is productive of much uneasiness, and the consequence is a greater accumulation of milk, which adds to the distress.

The contents of these abscesses are pus, and often milk mixed with pus. Sometimes the *entire* of the breast seems to be inflamed, and gets considerably larger and harder than that of the opposite side, and is accompanied with high inflammatory fever; the patient suffers much more than in the preceding case, and its course is generally more rapid. Now, here it is not the substance of the gland itself that is affected, but the cellular substance between it and the pectoral muscle, and this form is called an *encysted mammary abscess*. Occasionally, there will be a case of this kind which will have given little local or constitutional uneasiness until the matter has come nearly to the integuments, and this it does by making its way through the substance of the gland. There are various causes assigned for the production of mammary abscess. If the woman is obliged from her station in life to use her arm too much while the breast is distended with milk — if there be any cause to render her distressed in mind — if she suffers great depression or excitement — if she gets a cold that produces a feverish condition of the system — if strong measures be employed to put back the milk, particularly local ones, without proper attention to other treatment, she will be very likely to get this disease.

When the mammary abscess comes on after parturition, it is surprising with what rapidity hectic fever sets in. You will have as perfectly formed a hectic fever in ten days in these cases, as you could have in three weeks in some others; but it need not give you any alarm, for, as soon as the abscess bursts, the hectic symptoms will immediately disappear. But it will sometimes happen that hectic fever will come on even after the abscess bursts or is opened. The treatment of these abscesses should be almost entirely constitutional. I do not think that the local treatment, whatever it may be, is of the least consequence. I have read of warm oil being applied to the breast, in the commencement, and wonders are told of its efficacy, but I have not tried it, and can say nothing, therefore, of its virtues from experience.

I believe active cathartics, of the saline kind, are the very best things you can give. The patient and yourself may be very anxious to have the abscess opened early, on account of the great pain and fever it occasions, but if you do open it you cause much local irritation and profuse night sweats. Leeches do little or no good, and the exposure to cold, the slopping and the irritation they subject the patient to, often does a great deal of harm. Cold applications have been recommended sometimes, but they are not liked by the patient, and I think warm ones are better: your warm fomentations are best applied as women themselves do it — that is, to put the materials of the stupe into a wooden bowl, large enough to contain the breast, and lay it in it, covering the parts outside round with flannel. Even

when the abscess feels ripe it is much better not to open it, except indeed the matter be just under the cuticle, when you may just puncture it with a lancet and let out the matter; but in general you ought to avoid the lancet in these cases, for if there be any life or thickness in the parts you cut through, you excite fresh inflammation, and greatly increase the chances of other abscesses. [An extremely fetid mass, enough to fill a large washhand-basin, was here exhibited.] The woman to whom this breast belonged was taken into the hospital for what we all thought was mammary abscess: she, however, died in three weeks, and on examination, we found the mammary gland converted into this firm substance, which is extremely like cow's udder; the fever attending this case, however, was not at all like that of mammary abscess. Whether these abscesses be opened by the surgeon or not, it is ten to one that there will be more than one abscess. Sometimes the inflammation in the breast seems running on to suppuration, and this even for ten days, and after all, matter may not form, but the affection may terminate in resolution.

When her health is bad, remove the patient to the country—I have seen the improvement really wonderful from one day's country air. Some hardness remains after this disease, and different applications have been recommended to be rubbed on the part; but you will find that in this case the best thing you can advise is sea-bathing. I have witnessed the best effects from it. This hardness often remains for months, and might, in some cases, be mistaken for scirrhus, but there is nothing in the least malignant in it. As the child cannot suck the breast in this state, the accumulation of milk becomes very distressing, and it must be drawn by one of those bottles contrived for the purpose. Now, how often should it be drawn? If you draw it often, you excite a good deal of irritation, and if not often enough, the accumulation of milk produces fever: the best way is to be guided by the feelings of the patient. There is one circumstance which attends this complaint of a very unpleasant nature. The breast affected with mammary abscess may, in all probability, never secrete milk again. As you seldom can prevent the formation of matter, or cause its absorption when formed, your object is to bring it forward as quickly as possible. Sometimes you will be astonished at the quantity of matter one of these abscesses will contain. I have seen a quart of pus discharged from some of them.

The wound or ulcer after the discharge of the matter has a great disposition to fall into fistulæ; they will very seldom heal like abscesses in other situations. Now, if you are called in to a case in such a state, you must lay open these fistulous canals into one; you must follow them with the knife through all their ramifications, for if any of them are left unopened, the operation will be ineffectual. If in this proceeding there should be a small portion of the mammary gland insulated, you may as well remove it entirely: it can never be of any use as a secreting organ, and may, by its presence, retard the healing of the remainder. Mammary abscess is not exclusively confined to women; it has also been observed in men; there is

nothing peculiar in its symptoms or treatment differing from the same affection in woman. Abscesses, either acute or chronic, in the female breast, are by no means exclusively connected with pregnancy or nursing, although much more prevalent at those times than at others. Common abscesses in the subcutaneous cellular substance, may occur in the breasts of married or single women, as they would in other situations, but they do not differ from the same affection any where else ; and you are to treat them in the ordinary way. They occasionally can be traced to irregular menstruation or more general causes.

#### PARONYCHIA.

There is an abscess which is usually found at the ends of the fingers called *paronychia* or *whitlow*, of which there are some varieties, chiefly owing to their seat.\* One description of whitlow is a mild and trifling complaint ; it is where a little collection like a spot of milk appears just under the cuticle. All that is necessary is to cut the cuticle from about this, or puncture it, and it gets well of its own accord. The second variety is where the matter forms under the whole thickness of the skin. If it forms under the nail, the nail will inevitably fall off ; but, after all, this is the worst that can happen here. The third kind, commonly called the *malignant*, is a much more serious disease. A man will go to bed quite well, but soon after he feels a dreadful pain in the top of one of the fingers, which keeps him in torture the whole night. In the morning, when he looks at his finger, there is nothing to be seen ; very quickly he is seized with the inflammatory fever, and in six or eight days this runs into the irritative fever, as it is technically called — that is, where the pulse becomes much quicker, but with less strength. Sometimes the pain is so intense as to cause delirium, and yet after all nothing is *seen* in the finger itself that could account for this disturbance. So high does the fever go on some occasions, that patients have died of it and the pain and irritation caused by this form of the complaint, and some have been only saved by amputation. Often, if left to himself, the patient has a feel as if the pain and tension were creeping up the arm ; it shifts first to the middle joint of the finger perhaps ; some time afterwards he will tell you the pain is all in the palm of the hand ; it next passes the annular ligament of the wrist, and I have sometimes opened abscesses in the middle of the forearm which began in this way. When the pain is in the palm of the hand, an opening made into that region will give exit to very little matter, and the relief is but temporary. This form of paronychia is in the sheath of the tendons, between this strong fibrous membrane and the periost-

\* It will be *instructive*, no doubt, to students to learn, that Astruc and Camper reckon two kinds of whitlow, Heister three, Ledran, David, and Lafarge, four, Callisen five, Sauvages seven, and Francis Imbard, in his treatise on Humours, enumerates no less than eight varieties of whitlow ! — *Ed. of Lect.*

teum, and it always makes its way where these sheaths are weakest, as in the cleft between the fingers. When whitlow breaks it heals rapidly, but with perhaps the loss of a finger ; or the joints may become ankylosed ; or the hand itself may become stiff and useless ; sometimes, where the joints of the finger do not become ankylosed, you can feel the ends of the phalanges grating on each other, being deprived of their cartilages, and the bone itself, after a time, appears to be absorbed ; something extraordinary certainly does take place, for you feel the top of the finger perfectly soft, with nothing hard about it, but perhaps a bent, ill-formed nail : sometimes it will be the middle phalanx that will disappear, leaving the extreme one, and quite moveable, as if only hanging by the integuments. The first and second kinds of whitlow are found generally in those who work much at their needle ; the third variety is often observed in sailors and others who are much employed in pulling ropes.

How are you to treat this disease ? In the two first forms you have only to treat them as common abscesses, but in the third, when the patient comes to you, whether the *finger* presents anything remarkable or not, whether any matter has formed or not — and the fact is, you can never tell whether or not there be any matter there until you have cut down on it — you are to make a deep and long incision down to the bone. You must feel the knife grating on the very bone, and it must likewise be extensive, for the tendon must slough and be cast off, and you must give room enough for this process to be effected easily. When you lay open the finger, you don't find the tendon of a bright, shining appearance, like a natural or healthy tendon, but it has a ragged, unravelled look, like one which had been a long time steeped in water, and was going into putrefaction. Sometimes, whether it breaks, or has been opened rather late, the end of the bone will make its way out of the wound, and may take a considerable time before it is thrown off, but let it remain there. You may try from time to time if it has become loose enough to be drawn out gently with the forceps, and if so, remove it ; but use no cutting or other violence — it does no harm except preventing the wound from healing, but too much interference may do a great deal. Should the matter be under the nail, you must cut the nail away over it, and in doing so I give you one caution, — cut through the nail in the transverse direction, and afterwards the lower part will grow up over it, and there will be no deformity in a little time ; but if you make your scrapings or cuttings longitudinally, the patient will have an ill-formed nail as long as he lives.

If the inflammation has come into the palm of the hand, what is it that embarrasses the surgeon ? Why this — the integuments are as thick as this desk, and œdematous, and from this, and from the strong palmar fascia, under which the matter is, you not only can see no pointing, but it is impossible to feel a fluctuation in the slightest degree ; a kind of pointing will sometimes show itself in these cases — not in the palm, where the matter is, but between the fingers. If

you see this, let out the matter there, but if you must cut into the palm, remember you will have to go deep. Before you do this, it would be well to inform your patient that it will perhaps be necessary to make two or three cuts, for that come what will, you must reach the matter. This will make him submit easily to what he would not, if you first told him you had only to make a little cut, and afterwards he finds you may have to make several. It is probable you may have to divide an artery here; I have even seen the palmar artery divided in this operation; but suppose you must divide it, it cannot be helped, for you must cut down until you come at the matter, or serious mischief may follow; and even when you do succeed in this, an abscess may afterwards form in the arm. Now, you may be able to feel a fluctuation just above the annular ligament of the wrist, and to convince yourself that it communicates with a collection under the palmar fascia, and you might suppose it would be a very good thing to lay both open at once by dividing the annular ligament; but let nothing tempt you to cut through this ligament—you can have no idea what mischief such a proceeding would cause; in fact, death might be the consequence of such imprudence. Never tell your patient he is well until the sloughy tendon is thrown out. As to the fever that accompanies paronychia, severe as it may be, nothing can be done for it until the local disease is cured. Sometimes you will have, towards the last stages, to support the patient's constitution.

#### INJURIES OF THE HEAD.

We will begin this subject with injuries of the *scalp*, and it is necessary to consider these unconnected with any injury of the contents of the cranium, for the sake of arrangement, although much injury of the one is seldom met with uncombined with that of the parts within the skull. What is there peculiar in contusions of the scalp? There is but little, and that arises from the structure of the part itself, and from the danger of its being complicated with injury deeper-seated than in the mere covering of the skull. The integuments are connected to the tendinous expansion of the occipito-frontalis muscle by a very dense cellular structure, the fibres of which have something of a ligamentous strength, and enclose a peculiarly vascular adipose substance. Now, from the unyieldingness of this connexion, and the resistance of the bone under it, a comparatively slight blow will produce a greater effect than a severer one in a softer and more yielding part—the dense cellular membrane will be ruptured, and from the number of vessels ramifying in it, a bloody tumour will be readily produced; but from the structure of the parts it cannot well be diffused beyond certain limits, but will be impacted, as it were, at its boundaries, so as to give the margin a peculiarly hard feel to the touch, but this is all in which it differs from bloody tumours elsewhere. Suppose a man gets a fall, and his head strikes against the

pavement, which, particularly if it is convex, contuses the scalp — such contused portion must separate from its attachments below, and this separation leaves a space into which the broken bloodvessels pour their blood, and this is precisely what would happen if the contusion was over the shin-bone or elsewhere. There is nothing peculiar in the injury or the treatment of it; the blood will gradually be absorbed, and the parts will get well of themselves. If you make an early opening into this tumour before the parts are fit for the healing process, you will cause severe inflammation in and about the part, and there will remain an ugly ulcer, all of which it is necessary to avoid, as the mischief might extend to the internal parts. What you have to do is, to use some discutient to the part, and a *slight* degree of pressure, with compress and bandage, and in four cases out of five the blood will be absorbed in from ten to twenty days. Sometimes this will not happen, however, and if the tumour be placed so as to give much inconvenience — as, for instance, where a man cannot go out of doors because he finds it impossible to put on his hat, and especially if the integuments begin to inflame and point, you will then be urged to open it. This, under such circumstances, you may do after the lapse of twelve, fourteen, or twenty days, and what will you find? You may find the blood entirely fluid, or there may be a little bit of coagulum floating in fluid blood; but you do not find in any case a change of its natural appearance no more than if it had been effused but the day before. After opening it, bring the parts together, and keep them by compress and bandage, and they will quickly unite.

Now, you read that this bloody tumour of the scalp may be mistaken for a depressed fracture. Why, to a careless or superficial examiner it may be so. If you press the centre of the tumour with the point of the finger it will yield, and you think you can feel the edges of a circular depression of the bone, and you are told you are to distinguish them in this way. Run your finger along the scalp towards the tumour, and before it gets to its soft yielding centre, your finger will have to rise over a ridge round its margin, and then it will suddenly sink, which would not occur if it was really a depression in the bone; but there is a better and more obvious method to distinguish one from the other. If the portion of bone which receives the blow be really depressed, you will always find that the scalp is depressed along with it, and there will be no tumour at all, and on running your finger over the place you feel the depression in the scalp, and the finger will sink *gradually* into the depression. When this tumour is being absorbed, you will sometimes feel as if there was a little island of coagulum floating in the blood, but this makes no difference in the case, and it will go on very well. After giving exit to the blood, the scalp will, very likely, adhere to the parts beneath without a single troublesome occurrence; but should this not be, and that the parts suppurate, still it will be a simple mild ulcer, unattended with any bad symptoms, and will gradually cicatrise as such a sore would elsewhere. We meet cases of this bloody tumour of

the scalp in new-born infants, produced by pressure of the head against some prominence of bone during labour, or perhaps by instruments used for the delivery of the child; the treatment of such cases differs in nothing from that of similar cases in the adult.

It is possible to confound those tumours with others of a more grave nature, where the mistake might be productive of fatal consequences, if the surgeon were to act on it. The bloody tumour does not, in the first instance, discolour the skin. Now, there may be a deficiency in one of the bones of the head, and a protrusion of the brain take place under the skin, and if a puncture or incision was made into this tumour, I need not say to what consequences the surgeon's rash interference might lead. The way to distinguish the two cases is this—the tumour arising from protrusion will pulsate synchronously with the heart, but the tumour arising from a bruise or blow will not pulsate at all.

In the first case you must keep the patient low to prevent inflammation; the second, is the ordinary case which will get well under ordinary treatment, or, in fact, if left to itself, without any care, in general. There are no mysteries in injuries of the scalp, uncombined with injuries of the parts within the skull, although all the writers on the subject make some; even Mr. Pott, who, I think, the clearest writer on this subject, contradicts himself, and gives opposite directions in different parts of his work.

*Simple incised wounds of the scalp* are to be treated like similar wounds in other soft parts; they will unite readily by the first intention. Should a branch of the temporal or frontal artery be divided in a wound of the scalp, it makes no difference in what you are to do. Just draw the lips of the wound together, and apply moderate pressure over it. If the skull is laid bare, and if you even see a little chink in it, it makes no alteration in the case, but if a fissure, in which you can introduce the handle of a dissecting knife, be made by a blunt cutting weapon, there is some difference here, for this case is really one of depressed fracture. Suppose a wound made obliquely with a sabre which slices off a shell of bone, and on examining, you find it attached to the under surface of the scalp, if it is as thick as the external table of the skull, does this make any difference? None whatever. Leave it there; lay down the flap, and treat the case as a simple one; when you lay it, and the scalp down in their places, the bone will unite with the cranium by the first intention; but if the bit of bone be very thin and small, you must remove it, for it will have too little vitality to unite with the bone beneath, from which it was separated, and if it fails to unite, as a thicker bit would, it will act as an extraneous body, and perhaps do mischief, just as a bit of gravel would. You will, with or without this complication, keep the flap in apposition with adhesive plaster, compress, and bandage. Of course, in such an injury as this, you will have to watch your patient diligently to meet any inflammation that may show itself, with proper remedies. If the wound in the scalp be of an irregular figure, and that it would seem difficult to put its lips in

apposition, and keep them so, you are directed to put a point or two of suture in it. You will not often meet such a wound here, and the less you meddle with sutures in scalp wounds the better.

*Lacerated wounds* of the scalp do not materially differ from similar ones in the skin of any other part of the body; if they are not bruised they may heal by the first intention, but if they are, they must go through the usual course of such wounds any where. Some of these accidents are very extensive, and are very frightful in appearance. I have seen nearly the whole scalp torn from the bone and thrown back, and had really to draw it over like a night-cap into its place, yet such an injury will do very well; and what is very extraordinary, but what I have remarked often, the greater or more extensive this kind of injury is, the better it will do. As to *contused* wounds of the scalp all I need say is — Don't be in too great a hurry to draw the lips of such wounds together here, no more than you would similar wounds in other parts, for these lips will be carried off by sloughing and suppuration, and if you kept them bound too close together, you would excite erysipelas. Suppose a man falls in the street, or on a road lately gravelled, and that the wheel of a wagon grazes his head so closely as to tear down his scalp, and presses dirt and gravel into it, what are you to do? Some advise you, after you have completely freed the flap of all extraneous matter, to lay it down in its place; others, aware of the difficulty of removing every bit of dirt, &c., recommend you to interpose dressing of some kind between the scalp and the skull, with the view of loosening these extraneous bodies by suppuration, and finally drawing them away with the dressing after a few days. Now, I don't see much sense in either of these proposals. If you find dirt or gravel ground into the inner surface of the flap, wash away as much as you readily can with warm water and a sponge, but don't be too particular in washing it all off, or getting a sharp-pointed probe to pick out every little bit separately — you might be a whole day trying to do so without success; what you leave behind will be washed out by the discharge of suppuration. Should a bit of scalp be torn away, don't mind that, but lay down the rest. On looking at this wound a day or two after the receipt of the injury, you may find the pericranium perhaps separated from the bone the whole extent of the wound, and if you take it in your fingers you may draw it entirely away. Now, how will this end? Granulations will form, the polished surface of the bone will be absorbed by these granulations, which will then seem to sprout from the substance of the bone, the under surface of the scalp will adhere to these granulations, and all will do very well; even this separation of the periosteum then is not dangerous if the patient's constitution is not bad. When the scalp is healing you may see about the fourth or fifth day a little spot perhaps inflame, and this ends in a small abscess round a bit of gravel, slough, &c. If this be near the edge of the flap, you just take your probe and separate the adhesions a little, to let the matter, &c., escape; or if not near the edge, you puncture it with a lancet, or it bursts of itself, discharges its contents, and you

have no more trouble with it. The bone itself may suffer from the general contusion, and the contused part exfoliate, be thrown off, and the case go on as favourably as if nothing of the kind had taken place. Sometimes the flap will inflame, and recede from the sound parts with which it was before in contact; you are then to adopt the ordinary means of allaying the inflammation, and apply moderate compression afterwards, with sticking plaster, compresses, and bandages.

## LECTURE IX.

Wounds of the scalp (*continued*)—Punctures—Matter under scalp—Erysipelas—Concussion—Inflammation within the cranium.

IF a *punctured wound of the scalp* be superficial, it may heal by the first intention, but if the constitution of the patient be bad, or if the wound be deep enough to have penetrated through all the soft coverings of the cranium, it will often give a great deal of trouble, and, in some instances, be attended with eminent danger. Should the wound go through the aponeurotic tendon of the occipito-frontalis muscle, matter may form under this fibrous structure. The patient will get a rigor, indicating the commencement of an inflammatory fever, which will go on increasing in severity, even to the height of delirium, that form called *delirium ferox*. The scalp, over where the matter is about to form, is not perhaps very red, but there will be immense pain in it, and it will be acutely sensible to the touch; the swelling will be circumscribed and tense, so much so, indeed, that fluctuation cannot be felt at all. Now, you know that the cellular membrane connecting the aponeurosis of the occipito-frontalis to the pericranium is not of the same description as that connecting this tendon to the integuments. It is of that kind called reticular, and just as will happen where matter forms in this structure under a strong fascia in any part of the body, it will create great constitutional disturbance, and find great difficulty in getting to the surface. This, then, you will perceive, is a purely local affection, induced by the nature of the wound, and the tissues which it traversed; it will, therefore, require, almost entirely, local treatment. What you are to do, then, is — to make an incision through the whole extent of what you see separated, down to the bone, and let out the matter. You will also free the patient's bowels, keep him on low diet, and you will quickly restore him without anything more. Although you take every pains to persuade the man that your little incision is the safest and speediest thing that can be done to relieve his sufferings, and avert the danger he is in, yet you will sometimes fail in inducing him to submit to it. All you have to do under such circumstances is to have his scalp stuped and poulticed, to lower the system, and

perhaps in a little time the wound may get wider, the matter make its way out, and he finally do well. The matter, however, does not always get exit through the original wound, but will burrow on until it appears over the outer angle of the eye, or behind the ear, or elsewhere, at some distance from where it began, and at length escapes. This, then, is simply matter formed under a fascia, but if the man has lived an intemperate life, or has a bad constitution from any other cause, he may get instead —

ERYSIPELAS OF THE SCALP.

Now, this may result from all sizes and descriptions of wounds. It is not on the nature of the wound that it depends, but on the state of the patient's constitution. It seldom comes on before the second day, but after that, it may happen at any stage of the wound — nay, even when the wound is healed; but it generally occurs about the third or fourth day. Where matter forms under the aponeurosis the swelling is *hard* and *circumscribed*, while in erysipelas it is soft, red, and diffused; the eyelids, ears, and the face in general are very much swollen; in the former case they are not engaged in the swelling; the digestive organs are always in this case much deranged. Abscesses may form here, but I never saw them *point* in the situation of the wound. It has been said, the patients who have died of this erysipelas owed their death to a metastasis of the inflammation to some part within the cranium. Now, I made it my particular care to investigate the truth of this supposition, by opening several patients who died of this affection, and never saw the least trace of inflammation in the membranes of the brain, or any where within the skull. Mr. Wilnot, who was employed in the same pursuit about the same time, opened several patients who died in Jervis-street Hospital of this erysipelas, and never met an instance of such a metastasis. There is really nothing peculiar in this erysipelas of the scalp; it does not differ from the same disease any where else. It often occurs without any local injury of the scalp, from wound or contusion. In this case no particular attention is necessary for the local injury. The affection will be ushered in with a rigor, perhaps pains in the back or limbs, nausea, headache, and thirst; the tongue will be browner, rough and dry; the pulse will be frequent and small, and sometimes hard, the bowels will be irregular, and the urine scanty and high-coloured. The first thing you will do is to give an emetic of tartarized antimony, so as to cause full vomiting. As soon as the stomach is settled, give five or six grains of calomel with compound extract of colocynth or aloes, and follow it up with a saline purgative. You then continue the use of tartar-emetic in diaphoretic doses. When the patient is *quite* free from the disease, it will be well to have his head shaved two or three times, for if the hair is left to fall off of its own accord, which it is likely to do, it will not grow well again — it will always be more or less deficient in quantity.

## CONCUSSION.

A man may receive an injury of the scalp without the parts within the skull suffering in consequence, but more or less disturbance of the internal organs is a much more frequent occurrence. Now, it may happen that there shall be neither wound nor contusion of the scalp, yet the patient may die of injuries of the internal parts. Let us take a case: A man falls off a ladder from the height of ten or twenty feet, and pitches on his head; he is taken up insensible and brought to the hospital; his head is shaved, and the most minute examination can find nothing wrong in the scalp. Yet there he lies, insensible; his pulse 40 or 50; it may be regular, or it may be intermittent; his respiration slow; his breathing stertorous; his lips and countenance pale, and his body cold. After a time, however, his lips resume their redness, and his heat returns to him, but he still snores. You speak to him, but he does not answer a word, nor can he swallow; and he gradually recovers out of this state, after a day and night, perhaps. Although, immediately after the receipt of the injury, he passed his urine and fæces involuntarily, he now becomes sensible to the calls of nature, and thus he gradually but steadily improves, and in ten or fifteen days is quite restored; the time he takes to arrive at this is, however, very variable. The intensity or duration of the symptoms is by no means proportioned to the force of the blow, or the severity of the injury. When the patient recovers out of the state I have described, he finds himself, perhaps, paralysed on one side, or has lost his hearing, or the sight of one or both eyes, or his sense of smelling, and I am sorry to say there is no cure for these that I know of; or perhaps he recovers, with some derangement of his intellect, not amounting to madness, however.

The length of time a patient may remain in this insensible condition varies very much in different cases. I have known patients, having the symptoms above mentioned, recover so far in three or four hours, as to get anxious to be allowed to go home to their business, totally ignorant of how they got to the hospital, or what caused them to be sent there.

If such a case as this is to end badly, the patient does not recover from the state of total insensibility—there is no sign of rallying whatever, and he dies gradually.

If, while in the insensible state, you find his breathing slow, and his pulse perhaps 120 in a minute, or if his breathing be quick and his pulse slow, that man will die. I never knew a patient under those circumstances recover in whom the number of respirations, and pulsations had not the natural proportion to each other. Well, how do this man's functions go on? His eyes are shut, and if you open them, you sometimes will find the pupils dilated, and sometimes contracted. He seems perfectly insensible, yet if you pinch him, or attempt to bleed him, or to cut his scalp, there is no man who will struggle more, or roar louder than he will.

On examining a case of this kind after death, we find the parts in

one of two conditions — either we shall not be able to discover a single vestige of any thing unnatural in the cranium or its contents, after the most minute examination, except, perhaps, that the brain does not exactly fill the cranium; and even of this fact or appearance I am very much in doubt. Now, in this case we say the man died of *concussion* — or we find, on raising the skull-cap, a stratum of blood between the bone and dura mater, or between this membrane and the pia mater; or sometimes we find the substance of the brain itself lacerated, and blood effused between the separated parts; or we may find a coagulum of blood in the ventricles, or about the base of the brain. When the blood is between the bone and dura mater it is circumscribed, and generally in small quantity; but when it lies on the free surface of the arachnoid membrane, between it and the dura mater, we find the coagulum thin, and very much extended, and, what is important in a practical point of view to remark, it does not simply lie on the arachnoid, but actually *adheres* to it by means of coagulable lymph, showing the impossibility of removing it during life. Now, in this case we may say the patient died of *compression* of the brain. But recollect that either of these conditions of a patient may exist, although he actually has received no blow or other violence on his head at all. If he gets a fall on his rump, the concussion or violence may be propagated to his head, and may cause either of these sets of symptoms or appearances. Well, is there any symptom that will enable us to determine, positively, whether a man in this state labours under concussion or compression? I do not think there is. Writers, even the best of them, differ as widely as is possible as to the leading characters of each state — the pulse, the condition of the pupils, the way in which the patient breathes, &c., have been noted, and attributed to one state or the other without the possibility of coming to any certain conclusion from these conflicting opinions — a fact that in itself is sufficient to prove that the same symptoms may exist in either case. The older surgeons have contested the matter warmly, and some modern ones, as Mr. Abernethy, give several distinctions to guide our diagnosis, but careful observation will show that they are all common to the two states. I am quite positive that during life they cannot, in almost any case, be distinguished.\* We must, therefore, treat them alike.

\* When a pupil, I made many dissections in my hospital with the view of detecting some symptoms or set of symptoms that might establish a diagnosis in these cases. The result, which has at least satisfied my own mind, is, that the only symptom in an unmixed case of compression or concussion of the brain that can be relied on during the patient's life, for a true exhibition of the real state of the case, is to be found in the temperature of the skin. In some fatal cases where I could discover no lesion of texture after death, the patient's skin was *cold* from beginning to end, and whenever there was effusion of blood or depressed bone, the skin was of the natural temperature, and in some cases even rather above it. A theory might account for this, but I do not presume to offer it to the profession. I mentioned what I have stated to Mr. Colles after this lecture; he seemed interested, and said he would test it. The great difficulty seems ever to have been to get an unmixed case.—*Ed. of Lect.*

If, indeed, a man recovers instantaneously, or in an hour or so, we may say it was concussion, but this is very rare : or, on the other hand, if, with the symptoms I have mentioned, we see the patient bleeding from the nose, eyes, mouth, and ears, we may reasonably infer that such injury has been done as to cause rupture of some internal vessel, and that compression has some part, if not the chief or only one, in the effect we witness. Sometimes when a man is taken up insensible, if there be an officious person present, he will take out his lancet and proceed immediately to bleed him ; but this would be very wrong. There is here a recession or depression of life, and in such a case, I think it possible (although I have never seen an instance of it) to kill a person by bleeding him at this time. This observation is not peculiarly directed to a depression from *this* particular cause. I think you might kill a man by bleeding him during a weakness caused by his merely looking at a slight cut he gave himself in the finger.

How are we to treat this man who labours under these first symptoms of concussion? Why, if he is cold at the surface put something warm about him, and give a warm drink, if possible ; when he recovers a little, we then should bleed him, and while bleeding him we shall find his pulse grow quicker if he is benefited by it, the brain having been relieved by the operation. *This* bleeding we do from our observations in practice, and we repeat the bleeding afterwards from theory, to prevent extravasation. Now, in bleeding a man in this state, there is one thing you should never let out of your memory— viz., that although he appears quite insensible, the moment he feels the lancet he will start forwards in a way that will astonish you : never do bleed such a man without having one or two stout persons to hold him while you make the puncture. If you find his pulse gets more frequent, you may let the blood flow to the extent of twelve or twenty-four ounces, according to circumstances, and you will free his bowels by smart injections. We can go no further at present. If his pulse gets from 50 to 60 and you see no further improvement for twelve or twenty-four hours, you may bleed again.

Now, suppose a man has dined and drank freely, and in this state received the injury in his head, you find him trying to vomit, straining a great deal without being able to get up anything. You must give this man, first of all, a powerful emetic ; there is less danger in a full vomit than in this continual straining. When a man gets this injury, some will think they cannot be half busy enough, and will blister and bleed him, and so forth. In fact, the patient's friends, and often the surgeon himself, think that when they see a person in this state, too much cannot be done to bring him out of it, but time must be given for the brain to recover itself, and when one in this state makes any approach towards recovery, in nine cases out of ten, or at least five out of seven, that recovery will be progressive. You must keep the patient on low diet ; but do not be precipitate, or over zealous to do too much, nor repeat your evacuations too

quickly when you find the symptoms begin to yield — that is, when consciousness begins to return, when he ceases to pass his urine and fæces involuntarily, &c.

It has been advised to exhibit stimulants in the first instance to these cases — to give wine, ammonia, and Dover's powder; but recollect that stimulants of any kind would produce a tenfold reaction in any person reduced to this low condition, and one of the chief things you have to watch, and to use every means in your power to control, is too great a reaction, which, even where stimulants have not been exhibited, is, unfortunately, often more than a match for the best directed and vigorous efforts. As to wine, it is a very improper thing to exhibit in such a case — it never should be given — and as to Dover's powder, it does no good whatever, but may do harm from the opium it contains — a medicine quite unfit for those head affections, particularly in the early stage. When the patient is able to swallow, the best thing you can administer is a dose of some purgative medicine of a cooling nature, and that will be likely to rest on his stomach.

There is nothing more variable than the pulse in injuries of the head. A man's pulse may beat but sixty in a minute while lying quietly in his bed; but make that man sit up, and immediately it rises to one hundred and twenty; very slight exertion will quicken the pulse in this manner. Do not, therefore, mind every little acceleration of the kind.

It will sometimes happen, that although when a patient is taken up, after receiving the injury, he seems to have hardly any life in him, yet, by-and-by, he begins to mutter, and, after a little time, he becomes perfectly delirious; but he has a method in the midst of the delirium. It left to himself, he will perhaps get up and dress himself; if he wants to make water, he goes regularly and looks for the proper vessel, and uses it like any man in his sober senses; his pulse is, however, very quick; his movements unsteady; his eyes are morbidly acute. Now, I consider this a much worse case than when the patient is thrown into insensibility. I have, of my own knowledge, observed this delirious state to occur but in *extravasation*, but I believe it occurs also in concussion. As I mentioned before, when such a patient recovers, he may have lost his hearing or sight, &c., and this is beyond our ability to cure. There was a man in Steevens's Hospital who fell through the well of the staircase, and the only injury he received of any consequence was an amaurotic condition of his eyes, for which various remedies were tried without effect: in twelve months afterwards he got a fever, and during the fever he recovered his sight, and from that time to this he has not had a return of this complaint.

Now, if our bleedings, &c., don't relieve the patient whose case we have been supposing, and that his pulse, instead of rising, gets from sixty to fifty, ought we to trepan him? There is, we'll say, no sign, no mark on the scalp to direct us, or there may be five or six marks of contusion on it. You will find in books various methods

laid down for ascertaining, under such difficulties, *where* we should apply the trepan. One says, if you press the scalp here and there, the patient will give signs of uneasiness or feeling when you press over the spot where the extravasation or injury lies. Now, if you *do* trephine here, it is an equal chance you will find nothing. If several surgeons grope and poke the man's head, they will make some one spot a little more tender than the rest — in fact, you have nothing to guide you as to the place where you are to apply the trepan, and yet we must do something to give the patient the only chance left him for his life.

We are told that the blood must lie between the cranium and dura mater, or between this membrane and the pia mater, or between the layers of the latter, or in the substance or cavities of the brain; but if it is in either of the last two situations, of course it is out of our reach altogether. Now, if the blood be between the dura mater and the bone, what harm can it do there? Although the patient may remain for two or even three days insensible, the blood does not continue to be poured out all that time, for the closeness of the adhesion of the dura mater to the bone limits the quantity of the extravasation, and also the great strength and unyielding nature of the membrane itself — so that the thickness of the coagulum is not greater than the thickness of a shilling, and sometimes not half so much, about an inch or an inch and a half in diameter, and of the hundreds of cases we see recover from such accidents without any operation, it is hardly possible but that some of them must have had such extravasation; in fact, we are not without evidence that even large coagula, comparatively, have lain for a considerable period within the skull, and in much more critical situations, without producing any serious effects, after the first that followed the rupture. The blow on the instant separates the dura mater from the skull, and a little blood is thrown out from the wounded vessels; we trepan the patient, and are, perhaps, congratulating ourselves on the improvement we have effected, for he appears more sensible, perhaps opens his eyes and speaks, but the next day we find him worse. It is then said, "Oh! the extravasation is under the dura mater." Well, we cut through the dura mater, and what do we find? A little thin coagulum resembling, exactly, in appearance and consistence, currant jelly; here there is no mechanical hindrance to the effusion, and accordingly dissection shows that it is sometimes spread over half or the whole of the surface of the brain, has dipped in among its convolutions and ventricles, and, as I before remarked, is adherent to all the parts with which it lies in contact. Now, what advantage can the case derive from your proceedings in those cases? Absolutely none. But our operation may do service, should the symptoms that at first led us to perform it arise, as they sometimes do, from another cause than extravasation; namely, a fracture and depression of the internal table of the skull, while the external table remained perfect and could give no clue, on inspection, to the state of the case. Here we certainly must employ the trephine as the last

and only chance to save the patient's life. Before undertaking any operation here, we should tell the patient's friends the nature of the *chance* we are about to give him, to prevent their harbouring hopes it may not be in our power to realize. We do not apply the trephine until everything else has failed.

In a case of extensive extravasation, recovery, under any circumstance, is rare. A man gets a wound or blow with a broad weapon, and in seven or eight hours he is reduced to the last extremity. Why, here you can't make the man worse. The blow may have caused a wide separation of the dura mater, and consequently a large extravasation, the removal of which may be of great service. If you find the symptoms are very bad in the beginning, and grow worse, you must apply the trepan, as the patient's only chance. If you do trepan, what do you find? A coagulum, which perhaps you can't get up, and perhaps a cavity into which you could put your finger up to the second joint; in this case you must make a second perforation, and afterwards cut the two into one, and thus make room to get out the coagulum, and after you do all this, the patient goes off quietly. Pott tells you that the blood and dura mater must grow putrid, and cannot be got rid of by any effort of nature, but there is no want of evidence to show that blood extravasated into the cranium will be absorbed as it would be in any other situation, and does not grow putrid. If, after the removal of the coagulum, you do not in a little time see the cavity lessen, by the rising of the dura mater to its proper level, you may be certain that patient will die. I never saw a single case recover in which the dura mater continued depressed into a cavity, after the blood which had caused it to be so, had been removed.

#### INFLAMMATION WITHIN THE SKULL.

Well, now, let us suppose a man falls, and pitches on his head, and is taken up insensible, and after two or three days having apparently recovered of the injury, you find him up and walking about the room; if you ask him how he is, he says he is very well, or perhaps he complains of a slight pain in his head—will you pronounce this man out of danger? No; he is really in great danger, and of what? Of inflammation of the contents of the cranium—the symptoms of which do not show themselves earlier than the sixth or seventh day, and do not come to their height until the twentieth day. How does this inflammation begin to show itself? You come to your patient in the morning, and he tells you he has passed a bad night—he did not well know how it was, but he was tossing about in his bed, and could not sleep—perhaps he had some nausea or vomiting. You see something not right about his eyes—they want their natural lively expression—there is a dulness in his eye, and this is one of the strongest marks of the approaching mischief; I do not know how to describe it, but it has a different appearance from the eye of a person in common fever. Some-

times it begins with a rigor—slight at first—but as matters proceed the rigors become tremendous; he shakes the bed under him; and these are followed by the most profuse sweats, which are generally most severe on awaking in the morning. These rigors do not succeed each other at regular intervals—they are what are called irregular rigors—his pulse gets weaker, he begins to rave, and at length is convulsed, but only on one side, and this is the side opposite that on which he received the injury.

Suppose the case was one of simple contusion without any wound of the scalp, and that matter is forming within the skull, you will find the scalp puffed up into a tumour, which does not give the distinct feel of fluctuation, nor that of air, but as if it contained a mixture of matter and air, and it will grow larger. If you cut into this swelling the first day you will only find a little thin fluid in-it, but if you open it after some days you will find pus, and the pericranium separated from the bone. Suppose that at the beginning there had been a wound in the scalp, what change will you see in the wound? Why, the suppuration, which was going on well before, will be altered; the dressings, which used to come off easily, will now adhere to the wound, and before you remove them you can perceive that a thin exudation is making its way out through the lint. Suppose it had been a lacerated wound which before was granulating, you now find that the surface of the wound has become smooth, shining, and uniform—that appearance which gets the name of “glassy;” the granulations having entirely disappeared, the pericranium is found detached from the bone.

## LECTURE X.

Inflammation within the cranium (*continued*)—Formation of matter.—Fractures of the cranium.

At our last meeting, I mentioned some of the symptoms by which approaching inflammation of the parts within the skull was ushered in, and the changes an open wound of the scalp would undergo in such an event, and that if the wound had healed, the cicatrix becomes swollen and painful. We are told that there is great intolerance of light in such a case, but this is far from being a constant symptom, for many patients express none whatever, and others merely dislike a very strong light. It is set down in books as a pathognomonic sign of the mischief, that the patient has a feel as if a cord was drawn tightly round his brain; but these symptoms are not to be relied on as exclusively belonging to this case; for in common fever, there is intolerance of light, and a man may have inflammation and suppuration of the brain without any intolerance of light whatever. As to the corded pain in his head you cannot rely on this, for if you ask the patient has he a pain of that kind, or of any other kind that

suggests itself to you, he will say he has. With respect to the appearance of the wound in this case, you cannot rely on it as a certain sign of matter forming within the cranium, for it may take on this appearance from other causes. For instance, the blow on the head that originally caused all this, may have deadened a portion of the external table of the skull, this deadened portion of bone will exfoliate, and the wound will not resume its healthy state until it is thrown off, and this of course may happen without any formation of matter within the skull. I have met two cases of inflammation and formation of matter within the skull, during the whole progress of which the patient complained of nothing particular, except an oppression or "load" about the heart.

You see, therefore, that you are not to think these appearances or symptoms very important, or place too much reliance on them; but you must bear in your mind one fact, which will render you cautious in your prognosis on these occasions. It is this — that patients have died of inflammation and suppuration of the brain, without ever having had a single one of those symptoms laid down in books as always accompanying it, and without the slightest alteration in the wound. I recollect having examined after death a man who died of abscess of the brain: this man's wound had healed as well and as readily as any simple wound in any other part could have done, and the only constitutional disturbance or ailment he complained of, from beginning to end, was a little weakness.

In fact, *any* constitutional cause, unconnected with the injury of the head, will produce all the symptoms and appearances said to indicate the formation of matter within the skull. Why — even the very remedies you employ may produce them; for instance, the man has been once or twice bled, the vein may inflame, and all those symptoms result from the phlebitis. When, therefore, you find these symptoms present themselves, see if there be any other inflammation in the body present; or if there be, from any other cause, a derangement of the system; or if the fears or other mental affections of the patient have any share in them; see if there was any irregularity in the patient's diet, &c., before you pronounce your opinion on these symptoms.

Although the symptoms of inflammation of the parts within the skull do not appear until the seventh day, yet it is not at that period that the inflammation has begun. You will often find pus formed within the skull forty-eight hours after the injury has been received; in fact, the inflammation was going on from the very beginning, but the symptoms did not appear until it had got to that stage which caused the constitution to sympathise with it; and this you know is not peculiar to *head* diseases — it is what may happen in inflammation any where.

Old Mr. Dease mentions it as an extraordinary matter that one man will have his skull broken and a piece of bone come out, and yet this man will recover perhaps without a bad symptom; while another of similar age and constitution, will die of inflammation of

the brain, although he has only received a tap of a cane on the head. This was a great puzzle to all the older surgeons ; but the solution of the mystery is just this — that one was a temperate man, and the other had committed some irregularity in eating or drinking, &c.

I have endeavoured, as far as I have gone, to point out to you that many circumstances may exist to modify your treatment in any particular disease, in different individuals — that the previous constitution, habits, age, sex, &c., of your patient, must always enter into your serious consideration when administering to that patient, no matter what the name of his complaint may be, or what general rules may have been laid down for your guidance. All cases of injuries of the head of the same kind are not to be treated alike, no more than similar injuries in other parts. For instance, you must not bleed and purge men as long as they have any life in them. If a patient is strong and plethoric, you must lower *him* to the necessary point, and adapt the activity of your measures to his strength ; but if your patient is naturally of a weakly constitution — is already very low — you must not think of reducing *him* lower. A strong active soldier, for example, who has been well fed and well trained, and his wife, who has perhaps a delicate bad constitution, and is addicted to dram-drinking, should not be treated in the same way in any possible case requiring medical relief. There is really nothing mysterious or peculiar in the treatment of injuries of the head ; you must regulate your practice by the rules that would direct you in inflammation elsewhere.

Now, it is *diffused* inflammation that causes death in the great majority of those cases. In the suspected case of the formation of matter we perforate the skull, and find a small quantity between the bone and dura mater ; but cut through the dura mater, and there will be found matter diffused for some distance on the surface of the pia mater, the effect of the diffused inflammation, and this diffused inflammation is always owing to a bad constitution. Much, therefore, will depend for successful practice here on our care of the constitution. Well, how are we to manage this ? I believe on the first day those symptoms show themselves, the very best thing you can do is to give an emetic, and put the patient on low diet. This will be all that is necessary to be done on the first day, as you will thus allow yourself a little time to learn whether what you have noticed be really the forerunner of inflammation within the skull, or whether the symptoms are merely those of common fever, the simple result of the wound in the scalp ; or may not have arisen from some irregularity in the stomach or bowels, or imprudence in the patient himself. Inflammation of a vein that had to be opened in the first instance might readily lead one into error as to the state of the case — more particularly as the symptoms announcing it frequently do not show themselves for several days after the venesection has been performed, and the fever soon changing from the inflammatory type to the typhoid ; but if you only examine the arm, you are immediately sensible that, however the head be concerned in your patient's state, there is enough in his arm to occasion it all.

Surgeons formerly were very anxious, when they discovered the corded pain in the head, and vomiting, to treat it immediately as inflammation of the brain, but I believe the practice is now laid aside by every observing practitioner. Read Pott, and you will really think you never can trepan often or soon enough, but recollect, the operation itself may cause inflammation of the dura mater; and that this is not a mere matter of opinion, I will tell you an incident in proof, which I heard either old Mr. Dease or Mr. Obrey mention. It is valuable for this, that it would be difficult to find another instance where trepanning was performed, and where the consequences could not be attributed to anything but the operation itself.

Dr. Evatt had taken it into his head that lunacy was owing to the brain becoming too large for the cranium to hold it, and, full of this notion, he succeeded in getting permission to try if he could cure it by trepanning. Accordingly, three lunatics, in sound bodily health, were subjected to the operation; and what was the consequence? Why, that two out of the three died from the experiment; and recollect they were all in perfect health previous to the operation.

After inflammation of the brain has once commenced, what chance has the patient from the trepan? Very little. When you cut a piece out of the skull, and find no matter, you are told to cut through the dura mater to find it, and you get such directions concerning the signs by which you are to know if it is under that membrane, that one would think every thing was as plain as if you could see the matter through it. They tell you that, on raising the piece of bone, you will see the surface of the dura mater rough, and that you can feel a fluctuation quite plain in it; but no — the dura mater is thickened, and you really cannot feel anything like fluctuation. These instructions are of no use to you in the living subject. But if there even *was* matter below the dura mater, you might cut the bone, and through the membrane covering half the surface of the brain, before you could evacuate it; the matter here is *not fluid*; it will not flow out; it *adheres firmly* to the parts on the surface of which it lies. But there may be such a thing as a circumscribed abscess just under the dura mater, which could be evacuated, and therefore, as such a case *may* be, you ought to give the patient the chance, little as it is, of saving his life; but perhaps from the beginning to the end of your professional career, you will not save two people by the practice. Where there happens to be this circumscribed abscess, however, the patient will die of diffuse inflammation, if you neglect to trepan it. I recollect the first case I ever had was a child, who was brought to the hospital with puffy tumour of the scalp, about the size of a gooseberry; none of us could tell what to make of it; it was opened, and about a spoonful of matter was discharged; the child, however, died, and on examination, we found matter within the skull, which had, as one might say, corroded the bone, and was making its way through it. Here is a preparation of the child's skull, and you see how nature was endeavouring to evacuate the matter, by causing an absorption of the bone. In this case I think if the child had been trepanned it would

have recovered. I did, some time after this, perform the operation on a child under similar circumstances, and it recovered; but in fifteen or sixteen years afterwards, it became affected with epilepsy. I forgot to bring here the preparation of this patient's skull, but will show it to you another time. When you have to cut through the dura mater, let it be by a simple longitudinal incision, not a crucial one, as some have directed, which would only add to the chance of a protrusion of the brain, and not to the freer discharge of matter. The apparent improvement in the patient's sensibility after the trepan, is generally owing to the temporary stimulus of the operation, and perhaps, in some cases, to the small quantity of blood lost during its performance.

#### FRACTURES OF THE CRANIUM.

We shall now speak of fractures of the cranium. A simple fracture of the skull does not necessarily cause any bad symptoms whatever. If, therefore, a man gets a wound of the scalp with such a fracture, we are not to stuff the wound with lint, to see what will follow, no more than we would treat a compound fracture of the leg in this way. No; we should cover the bone quickly, and treat the case as a simple wound of the scalp. Should the wound be a lacerated one, with a fracture under it, does this make any difference? None whatever. Just treat it in the same way. Some direct you to follow the track of the fracture with your knife; but you might have to cut away to the base of the skull, or into the orbit, to follow it; and after all, to what purpose? I am sure if those who give such a direction were asked their intention or object in following a fracture, they could not tell. A blow struck on the parietal bone may cause a fissure that will run round to the base of the skull, and be stopped perhaps by the *foramen magnum*, or some of the foramina in the orbit. As then it would answer no purpose if you even did know the extent of the simple fracture, your object must be to cover the bone quickly, to prevent suppurative of the soft parts. If you should not even succeed fully in your intention of a speedy union, when you bring the integuments over a fissure in the skull, and that an abscess should afterwards form under the scalp, surely it is no great pain to the patient to open it again. Therefore cover the bone at once: all you have to mind is the constitution. Simple fractures of the skull seldom require the application of the trepan in the first instance; and if there should not be constitutional symptoms to call for the operation, performing it in anticipation, as it were, would rather tend to excite, than avert inflammation of the contents of the cranium; but there are cases where they do—for instance, a portion of the internal table may be depressed although the external table of the skull remains at its proper level: here you must perforate. Sometimes you see the blood coming rather freely from the wound in the scalp, you wipe it away, and still it flows; you examine it more minutely, and you perceive that the blood is oozing up through the fracture in the bone. Although the patient recovers the

first effects of the injury, and is even able to walk about, still the blood is coming. Well, here you *must* trepan, for, in this case, the blow has ruptured either a sinus or the middle artery of the dura mater. Now you are cautioned against the application of the trepan over a sinus, or over this artery. Certainly, if there should be no positive necessity for the contrary, we may as well avoid these parts, but there need be no dread in applying the trephine over them if circumstances render them eligible on other accounts. If a sinus be opened the slightest pressure is sufficient to stop the hemorrhage. If the blood should shoot up to the ceiling from the artery, a little bit of lint will, in general, be sufficient to control it—or, if not, it can be detached and included in a ligature. In general, the simple exposure to the air will be enough to stop this bleeding. Well, you must trepan in those cases, and remove the blood that has been effused, and which you will find partly fluid and partly coagulated. Here is a preparation of the skull of the child I mentioned, where matter had formed within the cranium, had caused absorption of the bone, and had made its way under the scalp. If we had trepanned over the seat of this circumscribed abscess, I think the child would have lived.

In depressed fracture of the cranium, the bone may be starred or broken into several pieces, and many of those pieces may be depressed, or simply one piece. Now, let us first take the simplest of these two cases. Suppose a fracture of the parietal bone with a simple depression. This was a case where the old surgeons would have trepanned immediately, supposing that all the mischief arose from the pressure of the bone; but they forgot that every one of the symptoms attending such a case were often present without any depression or even any fracture at all, and many recovered without any operation. A depressed fracture does not call for the *immediate* use of the trepan, but we should not cover up the parts the same as in a simple fracture. Our great attention must be directed to the constitutional symptoms, and if in one, two, or three days, we find our remedies produce no alleviation of these, then we should trepan; to wait so long can do no harm, if the case will permit it. In many of these cases you can raise the depressed bone without the trepan: the elevator or the common dressing forceps will often be sufficient for the purpose. If any depressed pieces of bone cannot be prevented from wounding or irritating the dura mater by other means, or if it be perfectly loose, and have lost all connection with the adjoining parts, so as to be incapable of union, we should remove it. In very small depressed fractures, where a loose bit of bone is sunk into the brain, it will be prudent to postpone any trial to remove it for a few days; for, if we attempt to catch hold of the depressed portion immediately after the injury, the first touch of the forceps sinks it more deeply into the brain, but if we wait for two or three days, the brain under the bone will become more firm by the adhesive inflammation, and its resistance will enable us to lay hold of the piece of bone with more safety to the patient. Recollect,

these depressed fractures are always more dangerous than simple ones, as they are more likely to cause inflammation of the parts within the skull; but the symptoms of compressed brain do not correspond in severity with the size of the depressed bone, or the depth to which it is sunk. Depressed fractures, which are very trifling to look at, often produce very alarming symptoms, and a frightful looking fracture may be attended with comparatively slight and transitory symptoms. You must therefore be very guarded in your prognosis in these cases.

As the fracture in the skull is only to be regarded according to the constitutional disturbance it has, or is likely to produce, we must guard against inflammation of the brain or its membranes by the strictest antiphlogistic regimen; we must purge the man, and keep him as quiet as possible. This inflammation within the cranium may come on from a wound of the soft parts exterior to it, but of course is much more likely to follow a fracture of the bone, particularly those attended with any depression, but remember it does not *necessarily* follow any of these injuries. You have therefore no means of knowing whether there be a fracture or not unless the bone be laid bare, and then it can be seen.

Exfoliations are not common, and when they do occur, they are very slow in their progress, and are not generally attended with any bad symptoms, even where both tables are affected. Should a patient with slightly depressed fracture recover, without any means having been employed to raise the bone to its former level, and that he is under seven years of age, the bone will in time be found to have risen of itself, and no ill effects will follow the injury; but if the person be advanced in life, the bone will not rise, and in a few years he will be likely to be attacked with epilepsy. I have seen even considerable depressions in children rise of themselves.

Sometimes, when there is a small wound, we are enabled to see the depressed bone broken into pieces, and jammed, as it were, into the dura mater or pia mater, but are not able to satisfy ourselves as to the extent of the injury or what relief we might be able to afford. Here we should dilate the external wound in the direction of the fracture, to a sufficient extent for our purpose. Sometimes we are able to detect such an injury by the touch, although there is no wound of the scalp, and if so, we are instantly to make an incision into the integuments, with a light hand, lest we depress the fragments still farther, and giving ourselves room enough, we remove as many of the pieces as we can do readily and with safety. You must recollect that fracture of the skull, whether simple or depressed, does not destroy the adhesions of the bone to the dura mater as a matter of course.

Suppose you are called in immediately after a man has received a severe injury of the head, and that you find a piece of his brain in his hat, or that it comes away in his night-cap after he is laid in bed—does this make any difference in the case? None whatever. Many such cases have done very well: many well authenticated cases are on record, where a considerable quantity of the brain has

come away, and the patient did very well. Such a case is therefore to be treated as if no such occurrence had taken place. In some of these injuries the brain will come away immediately after the occurrence ; in others, on the first or second dressing, with a little blood ; there will be a very fetid smell, and the wound may continue to discharge brain for five or six days before death. It will push up the dressings, get from under them, and run down the face. All this may happen, and be perhaps accompanied with symptoms indicating very great danger, yet such cases will sometimes get well in a few days.

It will sometimes occur, in three, six, or eight days after the operation of trepanning has been performed, and after the patient has recovered from the first effects of it, that a fungus shoots up luxuriantly from within the skull : when this takes place, the patient will hardly recover. I believe there are two kinds of fungus observed after trepanning. In one, there is nausea, vomiting, &c. ; in a word, fever, and the patient gets worse from day to day. Here there is not a new growth of the brain, but a deviation—a protrusion of the brain itself caused by extravasated blood in its substance. Nothing will cure this case. In the second case, and whenever the patient recovered, I believe it was a regular fungous growth from the dura mater, which, becoming strangulated by the margin of the trepan hole, and by the granulations shooting up from the dura mater itself, has dropped off without any assistance, and the patient recovered. In the first case pressure has been tried, and what was the consequence? The patient dropped down in convulsions the moment it was applied. Shaving it off has been tried, and the patient died instantly. In every case, and under any treatment, the patient dies.

*A gunshot wound in the head* is the most dangerous description of wound that man could get, for the points of contact between the ball and the bone are so small, that the effects of the stroke are immediately transmitted to the brain. The ball will sometimes go half round the cranium external to the bone, and after death you can trace on that man's *brain* the exact course the ball took. The ball will often lie in situations where an anatomist could never suppose there would be room enough for it, as just at the upper and back part of the external angle of the eye, in the temple. Sometimes you will see the ball half buried in the bone, and the other half sticking out. This is the most dangerous case of all, for the ball has driven in the internal table upon the brain. But a ball may strike, suppose, the forehead, and will not enter the skull, nor even injure the skin, yet cause a train of very formidable symptoms ; these will afterwards be found to be produced by a fracture of the internal table of the bone, which is depressed or thrown in upon the contents of the cranium. This inner table of the bones of the cranium is certainly much more brittle than the external table, and deserves the name of "*tabula vitrea*," which the old anatomists gave it, and we find many instances accordingly where external violence of

various kinds injures this table without sensibly affecting the outer one.

Injuries of the head sometimes cause death in a way not often mentioned. A man gets a blow which does or does not fracture the skull; he is greatly depressed; gets lower and lower, and at last sinks. Matter may or may not have formed in this case; but on examining this man's brain, you find a portion of it beneath where the blow was received, and extending no farther than the apparent boundary of the external injury, converted into a substance exactly resembling flummery in appearance and consistence, and the eye can clearly distinguish the boundary between this altered portion and the surrounding sound brain; this may arise from any injury, but it generally follows gunshot wounds of the head. Sometimes a man will appear to have recovered *perfectly* from an injury of the head, and without the slightest warning he will suddenly drop down dead. I saw a soldier who had sustained an injury of the head, and who had recovered so far as to be able to get up, and dress himself and walk about; he was at length discharged from the hospital; he complained of nothing, but just as he got to the gate of the hospital he dropped dead. On examination, this man's head showed an abscess in the substance of his brain. During his stay in hospital he complained of nothing particular after the first effects of the injury had subsided.

The elder Mr. Dease believed there were certain cases of injury of the head which never recovered. I do not recollect whether it is in his work, but I remember he used to mention in his lectures a case which you all may have seen. As a patient with one of those injuries lies in bed, it will sometimes be perceived, that the external auditory canal is filled with clear lymph, which rises to a certain height, but does not overflow. You get a bit of sponge and sop up this as far as you can see, but the ear again quickly fills, and this happens as often as you may try the experiment. Now, I have seen cases like this recover. In two or three days the lymph ceases to come, after which a slight crust of blood forms in the ear, which in a few days separates, and the patient gets well. Mr. Wilnot had a case of welling of the ear which recovered.\* This appearance certainly does indicate great danger, but it is not a certain sign of a fatal termination of the case.

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## LECTURE XI.

Injuries of the head (*continued*)—Trepanning—Concluding observations—"Practical Precepts" on injuries of the head.

BLEEDING from the nose and ears, although sufficiently alarming in

\* I have seen, at least, two cases recover where there was this lymphous welling in the ear, besides other bad symptoms. One was a case of the late Dr. Duggan's, and the other, I think, belonged to Mr. Adams—both in Jervis-street Hospital.—*Ed. of Lect.*

injuries of the head, is not, after all, so very dangerous a symptom. It indicates, it is true, that the fracture has extended to the base of the skull, but many of these cases have recovered. There is one case where the patient will not survive—it is where, as sometimes happens, one or more of the sutures of the cranium are separated by the violence. Though depressed fractures will often recover, yet, as in the case I have already mentioned, epilepsy may be the consequence subsequently. This, it would appear, arises from a growth of bone internally which presses on the brain. I have here a preparation of the skull belonging to the case I alluded to, of the boy who returned to me after several years with epilepsy, and you see a spicula of bone growing down into the brain. We find these growths of bone into the brain in cases which we cannot trace to any external injury—an exostosis, as it is called, and the subjects of it have, as in the present case, been attacked with epilepsy. The perforation made by the trepan is never repaired with bone. Here is the preparation of the skull of a man who died twenty years after he had undergone the operation of the trepan, and you see there is no attempt at osseous reparation; there is merely a thinning of the edges, from which the dura mater and pericranium stretch across in contact with each other.

Besides what I have already mentioned on the subject, there is another thing that should deter you from employing the trepan without great necessity; it is a case I never saw but once, but it made a strong impression on me. There was a man who had been trepanned; he recovered, and remained in good health until a long time afterwards, when he was put into the sheriff's prison; there he soon learned to drink, as most people do who have the misfortune to be put there; this, and the confinement, injured his constitution, and after a time, a small ulcer broke out in the cicatrix of the old wound—the bone under it partook of the mischief—it exfoliated, and the patient died of diffused inflammation of his brain.

After carefully considering all the circumstances of the case, and deciding that nothing but perforating the skull can give a reasonable chance of saving your patient's life, you will then proceed to the operation of trepanning him—that is, removing with a saw of this description a portion of the bone. Now, here is the old instrument for the purpose called a trepan, it is a circular saw worked something in the manner of a carpenter's bit-and-brace. It is seldom used in these countries at the present day, although perhaps in cases where much pressure of the instrument would not be advisable, as in children, it might be still employed. Here is what is generally used, and which is distinguished from the other by the name of trephine; it is worked in half circles, and where a thick skull is to be perforated, it really requires no inconsiderable labour to accomplish the object. The crowns of the old instruments were often made of a variable shape, tapering towards the teeth, and this form was given to it to prevent it suddenly sinking into the brain when the piece had been nearly cut through; and certainly if any one could be so care-

less as not to try how far he had gotten, and moderate his pressure accordingly, it might prevent the catastrophe. It is, however, next to impossible to get through any thickness of bone with it, and with ordinary precaution the modern trephine is, in every respect, more eligible. There is here a centre-pin within the crown of the saw, the point extends a little way beyond the teeth, but it can be entirely withdrawn by a spring or slide: the use of this pin is to keep the saw steadily in the one spot, for those who have not steadiness of hand to dispense with it in the first movements of the trephine. The head having been shaved, and before commencing the operation, your first care must be to have the patient's head supported by some solid resisting substance, such as a very small pillow, or a couple of folds of blanket on a table. If the head be placed on a large pillow or bolster over a feather bed, there will not be that resistance to the working of the instrument, which is very necessary. Having disposed yourself and your patient in the most convenient manner, you commence a single longitudinal incision, with a light hand, through the soft parts. This will be enough without cutting out a circular piece of the skin, as some, absurdly enough, have advised, or a triangular or crucial incision, neither of which are required to give space enough for the saw; but you must make your cut long enough to leave plenty of room, for if the soft parts get torn by the teeth of the instrument, you will not be able to heal them afterwards without an ugly ulcer. Should the forehead be the part on which you are to operate, a transverse incision will leave less subsequent deformity than one made in the longitudinal direction. Should you find, on exposing the bone, that your incision is not large enough, it is easy to cut at right angles through one of the sides in whatever direction circumstances may require. If the pericranium be not already separated from the bone, you may cut through it where the saw is to be applied. Now, you are told not to begin sawing the bone until the bleeding from the incision in the scalp stops; not even if you had to wait three or four hours for it; but a trifling degree of compression will control any bleeding of the kind, and you may go on. If the part you have to saw be very convex, you must use the central pin, or perforator, as it is called, until you make a groove in the bone sufficiently deep to prevent all danger of the instrument slipping. This is even more necessary if you use the *trepan*, for your hands cannot keep it so steady as the trephine, although in the latter it must be occasionally employed too; but if the part of the bone you act on be flat, you will hardly have to employ the centre, when you have acquired a little dexterity.

There are some very dangerous directions given by writers about cutting through the bone. You are told you may work on boldly until you see blood coming up from the diploe, or until you can feel you have got to the diploe by the greater freedom with which the saw works. But remember, there are parts of the skull on which you may have to operate, where no diploe at all exists; that in some skulls there is hardly a diploe in any part, and this last fact you have no means of ascertaining until the piece is taken out. When you have

worked some little time, remove the saw, and examine how deep you have gone; take a quill or a toothpick, and run it round in the groove, and observe if you have gone a little deeper on one side than another, and if so remember to lean a little more to the opposite side the next time, and, particularly if there be any oozing of blood, clean the teeth of the saw with the brush. Before you get quite through the skull, or, as you may think, nearly through it, raise the piece with the common elevator and forceps. Some irregularity must remain, and you should take away all the spiculæ you can; you will, in general, however, have but little to remove. After doing what more may be necessary for the case, you replace the integuments and cover them lightly, so as not to prevent the exit of any discharge.

If the patient is to do well, you will find that in a few days the dura mater will granulate and unite with the scalp. In general there will be a trifling exfoliation from the edges of the aperture made by the saw, and therefore if the wound in the scalp is tedious in healing, and does not look quite so healthy as you think it ought, there may be sufficient to account for this in the retention of the crumb of bone which has separated, without reason for apprehending more serious mischief there. Now, sometimes you find the aperture made by the crown of the trepan is too small for your purpose, and it must be enlarged: this you do by making a second perforation at the necessary distance, and in the required direction from the first, and divide the intervening part with Hey's saw. This instrument will be very useful where a piece of bone is depressed below the level, and overlapped by another, and will much shorten the operation in cases where a number of separate perforations would otherwise be required. In some fractures with depression, we don't find it necessary to do anything for its elevation. If the bone is broken into many pieces, a sufficient space for the elevator may be found without using the trephine at all; but take care to have a good purchase for the elevator. In some of these comminuted fractures, you may, by cutting off a projecting piece of bone with Hey's saw, make room for the elevator.

As soon as we have elevated the depressed bone, we have done all that is in our power to do for the patient, at that time, and our future proceedings must be guided by circumstances. I should have mentioned that when a part of the bone is not much depressed, we must include its edge in the perforation as well as the corresponding edge of the bone from which it has been broken, and which afterwards makes our fulcrum. From the circumstance of fracture of the internal table of the skull by a gunshot wound, with little or no external injury, being a frequent occurrence, we are justified in employing the trephine in those earlier than in most other cases; and as this kind of injury is not always caused where the ball first strikes the head, we should be particular in our examination of the neighbouring parts, and in watching the appearance of the puffy tumour in every part. Where a suture is engaged in an injury done to the bones of the head, there will be a peculiarity in the consequences that should

be always kept in mind—at least this peculiarity does very often present itself, that there shall be two distinct collections of matter, one on each side of the suture, without any communication between them. If, then, we trephine on one side, and give exit to some matter, but that little relief follows, we should not hesitate to operate in a similar manner on the other side of the suture, or include the suture in the first instance. Trepanning over sutures has been objected to, as a general practice, on account of the more firm adhesion of the dura mater in those places than in most others; but in the present case the objection is overruled by the advantages of a single operation instead of two, which is not a trifle, when at all sufficient. The bleeding from a sinus, or the middle meningeal artery has been so far from being a cause of apprehension, that it has been encouraged, and even a large sinus opened with a lancet, as a good means, opportunely given, for local depletion—a practice, however, I do not recommend for general adoption when practicable.

In mentioning gunshot wounds of the head, I should have alluded to cases you may read of, of balls lodging in the skull, and even inflicting injury on the brain and its membranes, and of their being afterwards removed by the trephine at some distance from where they entered. I have not witnessed such cases myself, but in a man with a good constitution, I can conceive the thing possible; but do not announce hopes too confidently on one or two rare cases, for gunshot wounds of the cranium, even when they do not penetrate into its cavity, are always to be considered as of the most dangerous description of any injuries that could happen. There is often considerable debility remaining, on the recovery of a patient from any severe injury of the head; therefore when you know you may do it with safety, give bark, and the best way perhaps is in effervescent draughts. It may happen that the external table of the cranium is fractured without the internal sustaining any injury. It is obvious that there can be but very few situations in which this can occur, as at the frontal sinuses, where these cavities happen to be very large, and the force extending but over a small portion of the surface of the bone; this may sometimes be attended with a limited emphysema. The outer table, in such a case, may even be somewhat depressed, and in the process you adopt for elevating it (if any be deemed necessary), you will not necessarily open the cavity of the cranium. When fracture occurs in both tables, or the two walls of the sinus, and that the application of the trephine is required, it is recommended to apply the crown of a moderate-sized instrument, first to the outer table, and then to perforate the inner one with an instrument a little smaller, to allow it to work easier and with less danger of accident. I omitted, I think, to mention one circumstance attending certain cases of contusions and wounds of the scalp. It is this: When the injury is inflicted on the forehead near the superciliary ridge, and that some of the branches of the frontal nerve are bruised or divided, it may occasion loss of vision in one or both eyes. Now, this of course you are not answerable for, nor can you do much to restore the sight—whatever time

may do ; but suppose a case of acute inflammation of the eye, for which local bleeding would be the appropriate treatment, you might attempt to open the frontal artery as it leaves the orbit, on account of its direct communication with the affected organ ; but in doing this the nerves could not be avoided, and thus, while relieving the disease, you might unfortunately destroy the functions of the eye. You will therefore on no account meddle with this vessel, as a means of taking away blood.

From considering the great importance of the subject I have now concluded, and anxious that you, gentlemen, should not misunderstand anything I have said on it, and that if the result of my experience, which I have laid before you, should possess any value, that you may retain the substance of it at least in your memory, I have caused to be printed a few practical precepts, of which I beg your acceptance as a mark of my sincere esteem, and a return for your kind attention. The plan of this little work has been borrowed from a similar publication, by the late Mr. Dease, the first Professor of the Practice of Surgery in our College. I have ventured to make considerable alterations in the arrangement, and such additions to the matter as have been supplied by the present improved state of surgery. I have made Mr. Dease my guide, because every man who has read his larger work, "Observations on Wounds of the Head," must see that the principles which he there inculcates, are now received as established truths, and are acted on as rules of practice.

#### PRACTICAL PRECEPTS ON INJURIES OF THE HEAD. — INJURIES OF THE SCALP

*Contusion.* — A blow of a blunt weapon, in general, detaches the scalp from the pericranium. The separation takes place to a greater or less extent around the seat of injury. Into the receptacle thus formed, and also into the broken cellular substance which surrounds the cavity, blood is poured from the ruptured vessels.

There is danger of mistaking such an ecchymosis for a depressed fracture ; because the border of it, raised and hardened by the blood which is impacted amongst the cellular substance, resembles the elevated circumference of a depressed fracture ; while the central part, soft and yielding, allows the finger to sink apparently below the level of the scalp.

If you open such tumours in an early stage, you will induce a high degree of inflammation and fever, which will be followed by suppuration of a very bad character.

By means of cold lotions applied to the tumour, by the antiphlogistic regimen and quiet, the extravasated blood will generally be absorbed in the course of ten or twenty days.

If, at the end of ten or twelve days, the tumour should continue undiminished, especially if the integuments begin to inflame and point, you may then make an incision sufficient to give exit to the blood ; after which keep the parts in apposition by compress and bandage, and they will quickly unite.

*Wounds.* — Simple incised wounds of the scalp are to be treated as similar wounds in the other soft parts. They will unite by the first intention.

If the bone be so cut that a scale of it be raised along with the flap of the scalp, replace the parts, and treat the wound as an incised flap wound of the scalp only: such a wound frequently heals as if it were merely a wound of the soft parts.

In lacerated flap wounds of the scalp, replace the flap and retain the parts in apposition by gentle compression, with bandage, &c., &c.

In contused wounds, if small, approximate the parts, but do not bring them into very close apposition; because a greater or less degree of suppuration and sloughing must follow.

Contused flap wounds are to be treated by laying down the flap after you have endeavoured to wash clean the surfaces. As soon as the process of sloughing is finished, bring the parts into the closest apposition, and retain them by adhesive plaster and bandages.

Should you dress the surface of the wound and the flap separately, the flap would, from day to day, become more thick, more unyielding, and more narrow; so that when you wish (after the process of sloughing) to draw the flap over the surface from which it had been raised, it will leave more than one-third of that surface uncovered.

Punctured wounds of the scalp are to be treated as similar wounds in other soft parts.

This class of wounds is sometimes followed with a circumscribed painful swelling, accompanied by inflammatory fever: these consequences arise from the *inflammatory tension* of the aponeurosis, and are most speedily removed by dilating the wound of this membrane.

Erysipelatous inflammation with fever is not an unfrequent consequence of wounds of the scalp, arising, however, rather from constitutional than local causes. The treatment should be the same as for erysipelas attendant on wounds of other parts. The event sometimes proves fatal. On examination after death no traces of inflammation of the brain or of any other disease of that organ can be discovered.

In wounds of the scalp (generally speaking) the antiphlogistic regimen should be enjoined, not merely to moderate the local inflammation of the integuments, but also to guard against the more serious danger of inflammation of the internal parts.

#### CONCUSSION AND EXTRAVASATION.

The primary or immediate constitutional effects of injuries of the head are, loss of sense and of voluntary motion, stertorous breathing, slow labouring pulse, involuntary discharge of urine and fæces, &c. Every possible variety occurs in the violence and duration of these symptoms, from a slight stunning to absolute and almost instant death. The intensity or duration of the symptoms is by no means proportioned to the force of the blow, or severity of the injury.

Dissection discovers two different states of the contents of the cranium, in those who have exhibited the above symptoms. In some,

blood has been found widely spread on the pia mater over one or both hemispheres, or extravasated into the ventricles, or about the base of the brain ; while in others we discover no effusion, no rupture, no disorganization of the brain : the only remarkable appearance which presents itself is that this organ seems not to fill the cranium completely. This latter class of patients are said to have died of concussion of the brain ; the former class, of extravasation.

The same train of symptoms occurs in both these forms of internal mischief. The same line of treatment is applicable to both.

In case of recovery, these symptoms in general slowly retire ; the sensibility and voluntary motion gradually return. In a few instances the patient suddenly recovers possession of his faculties.

Venesection, repeated if necessary, purging injections, purgatives by the mouth, and occasional blisters, should constitute the plan of treatment.

When the symptoms begin to yield, we may entertain good hopes of recovery. We must not then repeat the evacuations in too quick succession.

Should this plan of treatment prove ineffectual, and should the condition of the patient become more and more alarming, we may then think of applying the trephine ; for in some few cases it has happened that by the blow the dura mater had been detached for a wide space from the cranium, while at the same time a fracture of the internal table had torn the middle artery of the dura mater, or some one of the sinuses, and thus a large quantity of blood had been collected between this membrane and the skull. With the faint and uncertain hope of finding such an extensive separation, and such a large collection on the surface of the dura mater, we should apply the trephine. In general, however, this operation affords but little chance of relief, because the effused blood lies, not on the surface of the dura mater, but is widely spread over the pia mater, and tenaciously adheres to that membrane.

Whenever the usual symptoms of concussion and extravasation are combined with epileptic fits, spasms, or convulsions of any of the muscles of the face, carefully examine whether there be not a fracture, and whether a splinter of bone has not wounded the dura mater.

In a few instances of injuries of the head the patient is affected in a manner very different from that described in the beginning of this section. He has a wild look ; talks much ; frequently gets out of bed ; has a tendency to vomit : his pulse more than naturally quick ; his breathing neither slow nor stertorous.

#### INFLAMMATION AND SUPPURATION WITHIN THE CRANIUM.

Patients who have suffered from extravasation or concussion of the brain, may, after the removal of all the symptoms attendant on such mischief, be seized with symptoms of suppuration within the cranium.

The probability of such a consequence is not to be estimated according to the severity of the original injury ; for suppuration has

followed injuries of the head in which no wound of the soft parts, no fracture of the skull had taken place, and where the symptoms of concussion had been very trifling and transitory.

On examination after death we generally find a small quantity of purulent matter lying (at the site of the blow) on the surface of the dura mater. When we raise this membrane, we find nearly the entire surface of the hemisphere covered over by a yellow purulent fluid, which adheres so tenaciously to the pia mater that very little of it will flow off; indeed, the colour and consistence of this fluid would lead us to suppose that it was formed of a commixture of pus and coagulated lymph.

Nausea, thirst, headache, quick, full, and hard pulse; restlessness, pain, and corded feel of the head, are the constitutional symptoms said to be indicative of this mischief.

The local symptoms, in cases without wound, are a tumour of the scalp, puffy and tender, but not painful to the touch. In cases accompanied with wound, the surface, which had been healthy and granulating, will become pale, glassy, and flabby; instead of good matter, it will discharge only a thin discoloured sanies, the dressings will stick closely, and the pericranium, instead of adhering firmly to the bone, will separate from it, and that even to some distance, around the edges of the wound.

The symptoms indicating suppuration within the cranium never appear at an earlier period than the sixth day; generally between the eighth and twentieth days.

We are not, on this account, to conclude that the *inflammation* has only begun at this period. Dissection has proved that matter has been formed within the cranium so early as the third and fourth days; so that the above symptoms mark not so much the commencement of the inflammation, as the disturbance which the system suffers from the matter formed within the skull.

To avert this inflammation and suppuration we must take our measures from the very first day of the injury. Bloodletting largely and repeatedly employed, according to the condition of the patient, with a strict attention to the other parts of the antiphlogistic regimen, constitute the means most likely to succeed with the generality of patients.

The trephine should never be employed as a means of preventing inflammation of the brain and its membranes.

Rigors, fever, and the other symptoms, said to denote internal suppuration, may arise from a wound in some other part of the body; from inflammation and tendency of the injured bone to exfoliate; or from the ordinary causes of fever; therefore be not too hasty in applying the trephine on the first appearance of such symptoms. Search well for every other cause which may have excited the present disturbance in the system; use the means ordinarily resorted to for the relief of febrile symptoms; and if, notwithstanding these attentions, you perceive an aggravation of symptoms, then have recourse to the operation.

This operation must necessarily prove unsuccessful in the majority of cases, because the inflammation is diffused, and the fluid is spread on the pia mater, not on the surface of the dura mater, as had been formerly imagined.

In a few instances, however, the matter is formed in a circumscribed spot on the surface of the brain, with adhesion between the dura and pia mater, and occasionally with a splinter of bone forced through these two membranes into the substance of the brain. The early application of the trephine will save such patients; but if it be too long delayed, this operation will, even in such cases, prove ineffectual; because the matter of the abscess being pent up, will irritate the adjoining portions of the brain, and give rise to the diffused inflammation along its surface.

Should the operation fail of bringing the wished-for relief, and only a small quantity of matter be found on the exposed dura mater, we will have neither any certain guide to indicate the presence of fluid lodged beneath this membrane, nor any strong encouragement to divide it. Should the desperate condition of the patient urge you to this measure you will perceive only a very small quantity of serous fluid to flow through the opening.

After the operation of the trepan, the integuments should be laid down again, but not brought into such close apposition as to prevent the escape of pus.

The constitutional treatment must be regulated by the particular circumstances of each case.

When fungus of the brain shoots up, pressure will not restrain it. Removing it by ligature is ineffectual; by incision is mortal.

#### FRACTURES OF THE SKULL.

Simple (undepressed) fracture of the skull is not productive of any symptom or condition by which, when the integuments remain entire, we could be certain of its existence. Blood issuing from the nose, eyes, or ears, affords a strong presumption of fracture passing across the bones which encompass these organs.

In simple fracture, accompanying an incised or lacerated wound of the scalp, we are required to be particularly attentive to bring the lips of the wound into close apposition, and procure their speedy union.

To trace the extent of a simple fracture is equally unavailing and unnecessary; for such fractures too often pass from the top or sides to the base of the skull, until stopped by the foramen magnum; and surely the fracture, if left covered, is more likely to unite without much inflammation, than if it be exposed, to satisfy an idle curiosity.

The early application of the trepan to a simple fracture must tend to excite, rather than to avert, inflammation of the contents of the cranium.

The constitutional treatment of such injuries should consist in the most sedulous employment of the means calculated to prevent inflammation and suppuration of the brain and its membranes.

*Depressed fractures.*—The symptoms of compressed brain do not correspond in severity with the size of the depressed bone, or the depth to which it is sunk. In some slight cases of depressed fractures, the symptoms of compression are alarming, while in some severe injuries of this kind the symptoms are comparatively slight and of short duration.

If the case be not urgent we may postpone the attempt to elevate the depressed piece, until symptoms of inflammation begin to show themselves. Many such cases have had a complete recovery, although the bone remained depressed.

In depressed fractures, attended with severe symptoms of compression, we must quickly raise the depressed piece to its proper level.

This, in very open fractures, can sometimes be accomplished by the elevator alone. Where there is not room for this instrument, or where the form and circumstances of the fracture require the removal of some part of the skull, we should apply the trephine to such parts, and in such manner as will facilitate the elevation of the bone. In general, we will find it of advantage to make the trephine comprehend the border of the fracture.

Mr. Hey's saws will be found of great advantage in removing the edge of these fractures when of any considerable length.

If any depressed piece cannot be prevented from wounding and irritating the dura mater, or if it be perfectly loose, and have lost all connection with the adjoining parts so as to be incapable of reunion, such piece should be altogether removed.

In very small depressed fractures (such as may deserve the name of punctures of the bone), where a depressed bit of bone is sunk into the brain, it will, perhaps, be prudent to postpone the operation for a few days. For, if the operation be performed immediately after receipt of the injury, and if we attempt to seize the depressed fragment, the first touch of the forceps sinks it more deeply into the brain; portions of the brain, from the softness of its texture, rise up, and conceal the bone both from our sight and touch; whereas, if we defer the operation for a few days, we give time for the adhesive inflammation to take place; this circumscribes the depressed piece, hardens this spot of the brain, and thus enables us more easily and certainly to lay hold of the fragment of bone.

The older surgeons prohibited the application of the trephine to certain parts of the skull; but when the circumstances of the case require it, we should not hesitate to apply it even to those prohibited parts.

Wounds of the brain must be treated on the same principles that regulate our practice in the treatment of the other injuries of the head.

## LECTURE XII.

Division of the frenum linguæ—Hare-lip—Encysted tumours of the eyelids, &c.—  
Injuries of the throat—Cases requiring operation in and about.

*Division of the Frenum Linguæ.*—Children are often brought to the

surgeon as tongue-tied, but for one of them really requiring operation, five at least will not have need of it. Sometimes the fold of mucous membrane, called the *frenum linguæ*, extends so far forwards, and binds the tongue to the floor of the mouth so closely that the child cannot suck well, nor will be able, at a future day, to enunciate well, if something is not done for it. To divide the *frenum* with a pair of sharp scissors is a very simple matter; but you will guard against wounding the ranine artery, or what is much more in danger of being wounded, the ranine veins, for small as they are, they will pour out a great deal of blood, if opened, more than an infant could bear to lose. If it were not that the bleeding is induced and kept up by the act of drawing the breast, it is probable that it would soon stop of itself; but, under the circumstances, the blood will be swallowed with the milk, and the nurse have no knowledge of the matter until it is too late to remedy the mischief. You will, therefore, incline the scissors backwards and downwards sufficiently, and there can be no danger. Suppose, however, one of those vessels should be wounded, you might touch it with spirits of turpentine on a small dossil of lint, or with a point of lunar caustic, and you will generally succeed in arresting the bleeding; but the parts should be watched carefully. It has been advised to take up the lingual artery when everything else had failed to stop the bleeding. You know the lingual artery lies just above the corner of the os hyoides, at the most convenient part of its course for taking it up, or a little exterior or behind this point — so that you have a fair guide to it. You will take care to avoid including certain parts in your ligature that your knowledge of the anatomy of this region will indicate — such as the lingual nerve, the superior laryngeal nerve, &c.

## HARE-LIP.

There is a malformation seen sometimes in the upper lip of infants at birth called hare-lip, which causes great deformity in many instances, but always more or less; and not only this disfigurement, but, according to its extent and complication, may be productive of serious inconvenience during lactation, and even in after life. On this account, and as the affection is not of very rare occurrence, it has attracted much attention from surgeons from an early period. Perhaps the most general and simple form it is seen under is that of a cleft, extending from below the septum nasi, downwards through the whole thickness of the lip; sometimes it is not in the middle line but begins beneath one of the nostrils, and when this is the case, the cartilages of that side are stretched out, and the nostril is widely dilated. Sometimes there is the appearance as if there were two fissures, separated by a central projection, which, however, never reaches down so far as the margin of the lip, and is often but a little tubercle. Not unfrequently the upper jaw-bone is involved in the deformity, the alveolar process and palate plate being divided by a fissure corresponding to that in the soft parts. The fissures in the

lip is not straight as if cut with a knife, but its edges are rounded, as if scooped out, and of course there must be some cutting to make the parts lie evenly together in contact. In simple hare-lip, the operation is easy, and the best instrument to perform it with is a knife, except sometimes, perhaps, with very young children, with whom the scissors may be more convenient, and when used, it should be one of considerable strength. Your object in the operation is — to convert the margins of the fissure into even straight lines, and make them in their whole extent raw edges to favour their union with each other. To effect this, you make two incisions as high up as you can, beginning each at a common point above the commencement of the fissure. You take care to hold the side of the lip *firmly* in your fingers, and not to let it slip or escape until you have cut through its whole substance: you then make a similar incision through the opposite side, including all the rounded edges, and their irregularities in the two straight cuts; these will of course divide the coronary arteries, but pressure by the assistants will be sufficient to control their bleeding: you need never employ a ligature on them. You next take two needles, and pass each through all the structures of the lip, except the mucous membrane. If you leave any thickness of the lip behind not transfixed by the needles, a gaping will remain that may permit a serious bleeding from the coronary arteries, which you know run at the posterior surface of the lip close to its lining membrane, and, if the child is on the breast, the act of sucking will induce and continue this bleeding, the blood will pass into the stomach, and the occurrence not be discovered until too late to save its life. The loss of a very small quantity of blood would be hazardous in a young child. You push the first needle through the lip near its margin to ensure evenness at that part. Having passed the needles through, you twist a ligature in a figure of 8 shape from one to the other, and assist their purchase on the lips by strips of adhesive plaster, of sufficient length to include the cheeks; you then, with compresses and bandage, complete the resistance to any force tending to separate the cut edges from each other.

You will sometimes find the lip adhering so low down to the alveolar process, that it will be necessary to begin the operation by dissecting it from the bone. If a nipple-like portion of lip projects between the upper edges of the fissure, just include it in your V like incisions and remove it. Should the alveolar process project so much as to make you apprehend its thrusting itself between the parts you wish to keep in contact, you may remove it with a bone-nippers — it will give little or no additional pain. Should a tooth project, extract it with a tooth-forceps. If the nostril be much widened out, you must separate it from its adhesions, bring it to its proper position, and retain it there. If there be a fissure through the palate, it will often be found to close up of itself in some time after the cure of the fissure in the soft parts; if it should not, you must have recourse to some mechanical contrivance to prevent the serious inconvenience that the existence of this fissure would probably cause to the patient through

life. I shall have occasion, at another time, to say more on the subject of an artificial palate for the redress of accidental, as well as congenital deficiencies of the hard palate. As the needles should not be let to remain in longer than is absolutely necessary, to allow a certain degree of adhesion to keep the parts together with the aid of the sticking-plaster and bandages, you might remove them, in general, on the third day, but if the parts seem much on the stretch, you might let them remain in until the fourth. To withdraw them, there is no necessity first to untwist the thread from about them — just take the larger end between the forceps, and gently disengage them, one after the other, by a gentle rotatory motion. If the threads are glued to the part by blood or lymph, leave them there until they become loose, or until you know you can take them away without disturbing the wound: of course you will not meddle with the sticking plaster, but if you see a want of them, add a few more strips, re-apply your compresses and bandages, and keep the parts at rest until you find the adhesion secure. Silver needles with moveable steel points have been contrived for hare-lip suture, but I think the common, or glover's needle, better; you should wrap a little sticking-plaster or wax round their points after introducing them to protect the cheeks.

Now, what is the period at which you should undertake the operation for hare-lip? No doubt the earlier you perform it the better chance you will have of a speedy cure, but infants at a very early age do not bear operations well — many of them will be seized with convulsions and die, if subjected to a more trifling operation than this we have been considering. I think between the second and third year the best period.

*Tumours in the eyelids.* — Small tumours of the encysted kind are often met with in the structures composing the eyelids; if left to take their own course, they will continue to enlarge and cause a very disagreeable deformity, and what is of more consequence, even will in time, greatly interfere with the motions of the lid, and of course with the functions of the eye to the same extent; they, however, have nothing malignant in their nature, and may therefore be removed at any period without hazard. Now, when you come to examine one of them, it rolls about so freely under your fingers, that you would be led to suppose that all you would have to do would be to make a small incision over it, just large enough to let it through, and that a little pressure would make it start out from the wound; but you will find that this is rarely the case, for you will have a good deal of trouble in dissecting it from its attachments without wounding the cyst, which it would be well to avoid, or you will add to the difficulty. You will make your incision through the skin of the eyelid transversely, and somewhat larger than what you might fancy enough to let it escape. Some employ a little point of suture to keep the lips of the wound together from the trouble of keeping adhesive plaster on, but this is not necessary if you keep a light compress on the lid for two or three days. Those little tumours are not always in the same place as regards the structures of the lid: they are deeper-seated at one time

than another, and if they are nearer the lining membrane than to the skin, you may cut through the palpebral conjunctiva, and extract them without wounding the integuments. To know whether one of them is in front or behind the orbicularis muscle, all you have to do is to watch when the child cries, or to get the older patient to throw that muscle into action, and if it be next the skin the tumour will be only made more prominent, but if deeply-seated, it will be flattened by being compressed between the ball of the eye and the orbicularis. When you remove one of these through the conjunctiva, you will have nothing more to do than to let the lid fall down into its place, and keep it so for a day or two.

Cysts, containing a serous or watery fluid, form in many situations, as in the orbit, either at its upper or lower part — in the neck, the mamma, &c., and such should be removed with the knife early, as they sometimes attain a considerable size, and then their removal would be attended with much greater difficulty, with greater chance of a return, and sometimes with troublesome hemorrhage. It is always desirable to remove the cyst entire; but this you can hardly do if it should have been wounded in the progress of separating its attachments. If they have attained a very large size you cannot attempt, in most cases, to dissect out the cyst. Under these circumstances, you are advised to treat them as you would a hydrocele of the testicle — that is, to puncture them with a lancet or trocar, and evacuate their contents; and if you deem the chances of success greater than those of a return of the complaint, or the risk attending the trial, you may inject them as you would the hydrocele to effect a radical cure. The contents of encysted tumours are of various kinds, and you never can tell, by the most careful manual examination, what the nature of the contents may be. Sometimes a ball of hair has been found in one of them — sometimes a substance, which in colour and consistence, exactly resembles honey. There is one kind of tumour I have not unfrequently met with in the integuments of the thigh; it is not as large as the nipple of a woman's breast, yet it is attended with very great pain — it is not merely on pressing it that it gives pain, but whether touched or not the pain is excessive. Now, any palliative treatment you may employ in this tumour, does not signify in the least in relieving the distress which it produces: the only thing to cure it is to cut it out. Occasionally they will get well of their own accord, and the patients will have no more trouble with them; but if an incision will relieve a man of a local affection that keeps him in continual torture, there is no sense in waiting for a possible cure to take place spontaneously.

#### INJURIES OF THE THROAT.

Death by suffocation may result from many diseases and injuries of the throat. Among those which demand the most prompt attention are foreign bodies stopping in the œsophagus, and in such cases we are suddenly called on for the instant exercise of decision, cool-

ness, knowledge, and ingenuity, to save a person from the most imminent peril of death. You know that the narrowest part of that division of the alimentary canal belonging to the head and neck is the junction of the pharynx and œsophagus with each other, and here it is that a piece of meat or other substance attempted to be swallowed, most frequently stops. Now, when you consider the anatomical relations of this spot, it will be impossible for you to coincide in opinion with those who say that all the distress and danger arising from the stoppage of a piece of solid food here, is owing to its mechanical pressure acting on the trachea behind, where its rings are deficient, and so obstructing the air passing through it. Why, if pressure could obstruct the area of the trachea at any part in this manner, the place where the body is stopped is just the very one, of all others, where it could not possibly do it, for it lies behind the cricoid cartilage — a perfect ring, presenting a large surface to the obstructed body, and of such strength, from its shape and material, that the whole larynx would be protruded forwards, almost to any extent, before it could be crushed flat so as to obliterate the passage of air through it. That the suffocation from such an accident could not be owing to mechanical pressure is capable of other proof; for the convulsive breathing caused by bodies arrested in the œsophagus, will cease for a little time, during which the patient can breathe comparatively free, and it will return again. Now, this could not be the case if the obstruction was mechanical — such should be permanent. What, then, is the cause? It is a spasm of the muscles of the glottis, induced by the irritation of the foreign body in the gullet.\* The term *angina*, simply means any inflammation in the neighbourhood of the throat. In *angina tonsillaris* the operation of bronchotomy may be required, if both tonsils are engaged, before suppuration has taken place; but this is very rarely the case — in fact, I never saw such a case where the operation was absolutely required. If the distress is caused by a quantity of matter in the tonsils all you have to do is to give exit to the matter, and the patient gets instant relief.

You must not consider the opening of a large collection of matter in the tonsil (and they are sometimes very large) so trifling an affair as if it was a common superficial abscess elsewhere. If you incautiously thrust the point of a lancet or bistoury into one of those abscesses of the tonsil the patient might be suffocated by the sudden gush of the matter into the larynx. You should always open them

\* I have seen a direct proof of spasm being capable of bringing a person to the point of death. A woman was brought to the hospital, gasping in a most frightful manner. Having depressed her tongue, I saw a slight herring bone with its spinal end sticking in a follicle of the left tonsil, and its curved point bending to within a line of the rima glottidis. I tried to seize it with a dressing forceps, but at the moment she made an exertion to swallow — the bone touched the glottis, and then came on the convulsive efforts to respire. On extracting the herring bone, this went off, but for several minutes she felt as if it had not been extracted, and she said she even felt it in her throat with the tip of her finger thrust down her mouth. It might have been the corner of the os hyoides she felt perhaps. — *Ed of Lect.*

therefore with a trocar, such as this, which is constructed for the purpose. Now, there is some danger of wounding the carotid artery in the introduction of the trocar, if its point be turned outwards; you will therefore pass it in directly from before backwards, and push it on no further than is absolutely necessary to clear the opening of its canula from the anterior wall of the abscess. If, on the instant of withdrawing the stilet, you apply your thumb on the orifice of the canula, so as to prevent the immediate escape of the matter, you can then push it as far as you may think useful without any danger.

There is a case which sometimes requires bronchotomy,—it is this: A patient comes to you and complains of a sore throat and great difficulty of breathing; you examine his throat, and you see the tonsils in a natural state, as is likewise the velum palati, but look at the back of the pharynx, and you see its lining membrane protruded forwards. If you put in your finger and press on this you feel a softness, a want of resistance in the tumour—this is an abscess of the pharynx. Now, I have seen an abscess of this kind so large as to hold a quart of matter, I opened it with a lancet, and, although the patient was leaning forward, he was nearly suffocated with the sudden gush of matter. Such an abscess as this I would recommend you always to open with a flat trocar.

In other cases, there appears to me a better operation than opening the trachea, and that is to get a common gum catheter—cut off the end, leaving the eyes of the instrument on it, and introducing this through the nares into the larynx. There is no difficulty in doing this where we can get it through the nose, but there are some people who could not bear the instrument to be passed through the nose, and in such we must pass it through the mouth. Now, the great difficulty is to know whether the instrument has really entered the larynx or the œsophagus; you are told that you know this at once by finding whether air comes through the instrument or not—but air may come from the stomach as well as from the lungs. The way to know it beyond all doubt is, that if it has entered the larynx there will be a frightful convulsive cough and gasping at the moment of its entrance—you would really think the patient would die on the instant—but rest a few seconds, and this will gradually lessen, and at last subside, and the patient will afterwards bear the catheter, although with considerable distress; unless you pass the instrument through the nose you can hardly, even with this test, be *quite* certain that it is in the larynx. Now, it will sometimes happen that after the catheter has been in the larynx for five or six hours—no matter whether it has been passed through the nose or mouth, that the patient's breathing becomes as bad as ever—we naturally think the instrument is obstructed, and take it out to clean it of the mucus collected in it, and sometimes you will be right in your supposition; but sometimes, and it is a remarkable fact, you will find no mucus or other obstruction in it at all. I have not been able to satisfy myself as to what the cause of this may be. In introducing a catheter into the larynx, whether to allow the patient to breathe in such cases as I have spoken

of, or for the purpose of inflating the lungs in persons apparently drowned, for instance, but particularly in the latter case, you will materially assist the furtherance of your object by pressing back the cricoid cartilage rather firmly against the bodies of the cervical vertebrae, because, by this manœuvre, you close the orifice of the œsophagus; you will also draw forward the tongue which will leave an uninterrupted and more direct course for your instrument into the larynx. If you require to pass a tube down through the œsophagus you will do the reverse of this — namely, to make the patient keep his tongue back, or if he be unable, in his agitation, to comprehend you, to press it gently back yourself, by which the epiglottis and root of the tongue will protect the larynx, and make the road to the œsophagus more direct.

In angina laryngea we cannot attempt to relieve the patient by the catheter, because the instrument should be applied to a part in a state of high inflammation. This disease has been divided by the French surgeons into two kinds — viz., the inflammatory and the œdematous, but there is no good reason for such a distinction, for in every case there is a watery fluid between the cartilages of the larynx and their mucous membrane, and which sometimes accumulates to such an extent as to close up the glottis; here you have nothing for it but to perform bronchotomy. There are two situations where the air tube is opened, one between the thyroid and cricoid cartilages, and the other below the transverse slip of the thyroid gland, the usual seat of which is in front of the two or three first rings of the trachea. We do not operate in those two situations indifferently; should we have to operate in a case of laryngitis, it would be better not to operate high up, because we should be too near the seat of the inflammation; but when the case requiring the operation is not one of acute inflammation, the easiest and safest place is in the crico-thyroid space. The operation is also sometimes required where foreign bodies get into the trachea. A man, suppose, is eating plums, and one of the stones gets somewhere, and causes violent convulsive breathing and cough. Now, I defy the surgeon to tell whether it is in the trachea or œsophagus. Formerly, it was the custom, when a bit went the wrong way, and caused the symptoms of choking, for the surgeon to thrust a probang down into the œsophagus directly, to push the morsel into the stomach; and certainly it would do so if the morsel was in the œsophagus; but as I remarked, you cannot tell where it is. Now, can the use of the probang do mischief? It can — for if the foreign body be in the trachea, the instrument, in its passage to the stomach, will push it farther down into the trachea, and thus render the case much worse. When a child swallows a marble or cherry-stone, the breathing becomes suddenly convulsive and difficult in a violent degree — the child can point out to you the exact spot it stops in — he makes violent efforts to tear open the parts about the throat and neck, and in a few seconds he may die, or he may live for half an hour. In some cases, after five or ten minutes, one in those circumstances breathes more freely, and this relief may last for half

a day. I recollect being called in to a child in this state ; he had what children call a pop-gun made of a quill, with which he used to shoot pellets of raw potato ; he had this quill in his mouth, something made him laugh, and down went the quill into the trachea. When I arrived, however, the difficulty of breathing had almost ceased, and the child's mother, a thrifty Scotchwoman, would have nothing to do with the doctor, as the child was better ; however, all the bad symptoms returned, and again subsided : something excited the child to laugh, and out popped the quill ; and what was remarkable, the bit of raw potato which was in it when it went down, was not in it when it came up.

Foreign bodies getting into the larynx or trachea may cause instant death, or death after some interval — or they may cause death in a secondary way, as by inducing phthisis. Though the patient may appear to be tolerably easy with the foreign body in the trachea, we must operate, for if we leave it there, phthisis will be the result. It causes an abscess in the bronchus, or the inflammation extends itself to the lung, and causes the disease. Another case where bronchotomy may be required is where a child swallows boiling water, which will cause such thickening of the parts as to entirely impede the passage of the air into the lungs. There is another case which may also require the operation, and which is often connected with an old venereal ulcer of the throat : it extends to one of the arytenoid cartilages ; this become detached in part, and, falling down over the rima glottidis, may cause death in a few seconds by acting like a valve and preventing the entrance of air. Here is a specimen where a venereal ulcer entirely destroyed the epiglottis, and you perceive the rima so thickened and circular, that if you did not see the tongue, you could never suppose it to be the opening of the larynx. This case may also require bronchotomy. Chronic laryngitis may also require it, but after you have performed it, what do you gain by it. Very little ; for the long-continued dyspnœa has already produced disease of the lungs, and therefore the operation seldom succeeds. I should have mentioned, that when a child has swallowed boiling water, and that this thickening follows, the child has just the voice and cough of one in croup. I was one evening sitting after dinner, and I believe it was Mr. Todd who was sitting with me, when a child was brought into my hall who had met this accident, and when we heard it, we both said : " This is a case of croup." We operated on this little child, which had swallowed boiling water, but it died in about a week after ; indeed, the operation seldom succeeds here. *Croup* is a disease that seizes a child very suddenly. He goes to bed quite well ; awakens with all the symptoms of croup, and perhaps in half an hour they appear to go entirely away, and he goes to sleep again, breathing quite freely. Unfortunately this remission of the symptoms, or apparent subsidence of the disease, too often causes a loss of time — that time which is here so precious, and the little patient is carried off from

two to four days. Bronchotomy is of no use in croup, as the inflammation is not merely in the larynx or trachea, but extends over the whole mucous membrane of the lungs. Sometimes as a person is just going to swallow a mouthful, he will fall down and expire, and is said to be choked; but the œsophagus may be found quite pervious, and the cause of death may turn out a disease of the heart or an internal aneurism.

### LECTURE XIII.

Tracheotomy — Inflammation of glands about the neck — Glossitis — Wounds of the thorax.

WHEN the operation of tracheotomy is to be performed you will find things in a different condition from what you might suppose from performing it on the dead subject. It is all very well to say, throw the head back and give yourself room; but you cannot put your patient into the position you would wish, on account of the difficulty of breathing — it is so great that he cannot bear such a position an instant — and that in which you find him is generally a bad one, for he is leaning forwards; and you must put up with the inconvenience. The way to perform the operation in the upper part of the neck is this: — Take hold of the thyroid cartilage between your finger and thumb, and make a perpendicular incision with a scalpel through the integuments, down to the cricoid cartilage, and then make a transverse cut between the thyroid and cricoid cartilages through the membrane connecting them. Here the parts you operate on are superficial, and no part of consequence comes in the way of your knife. There is sometimes a little artery running transversely on the cricothyroid membrane, but even if it should be present, and be wounded, it will give little trouble. A trocar has been recommended to be used in making the opening between the cartilages, but it is a bad instrument for the purpose, as you might transfix the larynx with it or wound its back part; besides, the canula of such an instrument would be a very inconvenient one to leave in the wound, if you thought such a proceeding advisable. I think any canula generally unnecessary in these cases. The moment you put in a canula it is shot from the wound to the other end of the room, and besides, it irritates, although a curved one does so less than a straight one. There is no necessity for a double canula at all, for when you want to clean it, there is no difficulty in removing or replacing it. In operating on the trachea below the thyroid gland in chronic cases, the parts are all so thickened that it is sometimes difficult to find the trachea. I have seen surgeons looking for it before they got between the sterno-hyoid and thyroid muscles, which will be found in such a case much enlarged in size; a trocar in this latter kind of case is a very dangerous instrument, for it may slip off the trachea, or the trachea may slip from

under it, and the instrument be plunged into some of the arteries at the side of the neck. You might make the incision into the trachea with the same knife with which you make the external incision. You should make your division of the integuments long, so as to give you plenty of room, and don't let your assistant draw the lips of the wound asunder, but do it yourself, lest you lose the proper line of your incision, which would embarrass very much the subsequent stages of the operation. You must generally divide some of the veins which lie in front of the trachea, and here you are advised to suspend your proceedings until the blood stops, lest it should get into the trachea, even for two or three hours — but this is not necessary: just get an assistant (and you should take care to provide yourself with an intelligent one for the purpose) and let him draw the lips of the wound asunder with a straight or curved spatula, or put in a dossil of lint on the side the bleeding comes from, and go on with the operation. The trachea lies so loosely connected, that a very slight pressure can move it from side to side, so that before you attempt to open it you must hold it fixed in its place with the finger and thumb of the left hand, while you make your puncture or incision through its rings with the right. You know how closely the carotid artery and jugular vein lie to the side of the trachea, and if your knife slipped off its convexity, it might readily wound one of these vessels: the consequence of such an accident I need not mention. When you have opened the trachea, if you think it necessary, just introduce a quill into the opening, and this will generally be enough. If the operation is required in consequence of a foreign body being in the trachea, it generally happens that the moment this tube is opened the substance that got into it is thrown into the mouth: I don't know how this happens, but so it is.

Dessault tells you that the foreign body sometimes gets into the ventricles of the larynx, and in such a case he advises you to proceed in the ordinary manner until you come down to the crico-thyroid membrane, through which you make a transverse incision; into this you introduce a director, and pass it upwards through the rima glottidis; guided by this you pass up a strong probe-pointed bistoury and divide the thyroid cartilage in the line of junction of its *alæ*. He says that if the thyroid cartilage be converted into bone, which you know is not unfrequently the case at or after the middle periods of life, that still the knife will find but little difficulty in cutting through it. You recollect that these little sacs, the ventricles, lie at each side of the larynx, with their openings looking towards each other, that they are situated above the *chordæ vocales*, and that the anterior extremities of these ligaments are attached to the thyroid cartilage, so close to each other that it is not an easy matter to pass a knife through the cartilage without wounding one of them, and that it is not in any case a very easy matter to be satisfied beforehand that the foreign body be in those cavities at all; it must be a very small body, in fact, that could lie in them, for a small garden pea could hardly fit in one of them. All I can say of this operation is — that I never saw a case where it was necessary to perform it.

*Inflammation of Glands about the Neck.* — The SALIVARY GLANDS are not very subject to disease. They occasionally form calculous concretions, and are sometimes the seat of scirrhus, but acute inflammation and abscess are very rare, although collections of matter, and large ones too, are often formed in their immediate neighbourhood. A person will get an ear-ache, which will, in a little time, become a violent pain, attended with high inflammatory fever, the part will become very red, which will, in some cases, extend over the whole side of the neck down to the chest. After some days of intense suffering, a little matter will appear in the external auditory canal, and some will be discharged for a few days, but with very trifling relief. Now, although this begins in the parotid region, the parotid gland itself has nothing to do with it. It is inflammation and suppuration of some of the lymphatic glands on its surface, between it and a dense fibrous membrane covering its outer surface; this fascia binds the inflamed gland down, prevents the matter coming to the surface, forces it to extend itself down the neck, and, at last, the pent-up fluid makes its escape, by little and little, through some of the deficiencies in the cartilaginous portion of the external auditory canal lying behind the parotid gland. But this mode of discharge gives very little relief to the patient, and does little or no service. Although you cannot feel any fluctuation at the place the matter first forms, in general, yet you can have no doubt of its presence, and you should, without delay, give free exit to it, and if the disease had remained unrelieved by your operation for any time, a very considerable quantity will be let out, and the patient be relieved. I need say nothing about the operation for removal of the parotid gland, for if you consider its anatomical relations you will be convinced that its removal is quite beyond the power of surgery; but in the cases given us of its removal, I believe the matter to have been simply this — that one of those lymphatic glands had been the subject of chronic enlargement; by its pressure it at length caused absorption of the parotid to a great extent, and the removal of this enlarged lymphatic was mistaken for that of the parotid itself. The enlarged gland would not of course present the same difficulties in its removal as the parotid would, for no matter what changes of form or size it might undergo, it would not have the important vessels and nerves running through its substance that the parotid gland must have.

The TONGUE is sometimes inflamed, and when this is the case, the swelling of the organ is so great as greatly to impede respiration and to prevent deglutition. You might, on seeing a case of this kind, think that a necessity existed, or was threatened, for the operation of bronchotomy; but this is hardly ever the case. All you have to do is to make two or three deep incisions into the substance of the tongue, and the swelling will subside in a few hours.

## POLYPUS.

The disease called polypus may be considered as belonging par-

ticularly to mucous membrane, and is generally connected with the lining of the nose or uterus, although occasionally met with in other situations. Polypus occurs in two states or under two forms, one called the *benign*, the other the *malignant*. The first gives little trouble but from its size, and the consequences to the neighbouring parts from its increasing volume; the second is often painful, and distressing from the beginning, more than its mere size could account for. What would lead you to think that a man is breeding a polypus of his nose even before there is any external indication of its presence? Why, he will tell you that he has had a cold in his head for some time — that he feels as if there was something stopping it up, and uses his handkerchief incessantly; that there is some discharge from it, but that, as he experienced no pain, he hardly thought it worth his while to apply for advice; but that its continuance, notwithstanding the use of medicine which he had several times taken, and lately the seeming enlargement of one side of his nose had alarmed him a little. If you question him, he will tell you that he is worse at one time than another; that he thinks he is worse in a warm room and in damp weather than at other times, and that lately he can hardly breathe at all through his nose when he gets into bed. You clearly see one side of his nose swollen, the swelling being larger in the middle; not being so wide where the edges of the nasal bones are, nor at the nostrils. When you come to make an examination of the parts, you find a greyish soft swelling filling up the side of the nose; if you press it with a forceps, it gives no pain, but it increases the quantity of watery discharge that comes from it. Although you do not detect more than one swelling, there may, in fact, be two, or three, or more distinct polypi existing at the same time. The presence of this kind of polypus, then, may be suspected before there appears any deformity, and some of them have remained without much increase or disturbance during the patient's life. Now, the malignant polypus of the nose is accompanied from the commencement with pain in the nose, forehead, and general headache. It is not affected by change of weather or other circumstances that influences the mild form of the disease — it is not soft or greyish, but has a peculiarly firm consistence, and of a liver colour; when you press on it pain is felt, and some blood will be discharged. This polypus may go on slowly increasing for years until it ends in a cancerous or fungous disease, and produces a frightful destruction of all the neighbouring parts. Long before this, however, the skin over it assumes the liver colour of the polypus itself; in some of these cases there will be small bleedings from the nose from the beginning, and the bleeding will be increased by touching it. Treat this malignant form as you will, it will never become mild — it will not change its character for that of the simple kind I first mentioned, and so far is any interference or meddling with it likely to do service, that it only hurries it on to its worst form. I saw one case where the patient died in twenty-four hours after an attempt had been made to extract a malignant polypus. Notwithstanding the opinion of John Bell and Richter, I am decidedly of opinion they should not be meddled with.

Now, is there anything might be confounded with a polypus of the nose? An abscess sometimes forms in the nose, which, by its enlargement, simulates the first symptoms of polypus, and when you examine the parts you see the nostril filled up; when you are able to detect the part of the nostril to which this swelling is connected (which is generally the case) you find it attached to the septum. Now, this is a place where polypi are never found, as far as my experience goes, and this fact will at once decide the question. In many cases of those abscesses at the septum nasi, there will be found one also in the other nostril, just at the other side of the septum. A simple relaxation of the mucous membrane proceeding from the lower spongy bone, is said sometimes to resemble a polypus, and the difficulty of distinction arises chiefly from the fact, that the root or attachment of a polypus can scarcely ever be discovered by the eye, or satisfactorily even by touch with the finger or instruments—it is generally high up, and may be at the most posterior part of the cavity. Now, suppose, a boy of thirteen or fourteen years of age, comes to you and complains of most of these symptoms accompanying the early progress of a polypus, that there is a tumour there, which bleeds frequently, with or without apparent cause, and attended with pain—may this be anything besides polypus? It may be fungus hæmatodes, and I believe it is as frequent an occurrence as malignant polypus itself. Well, look at this boy's countenance—instead of the brownish appearance of the side of the nose, and the pallid appearance in the face generally, which will result from the nature of the polypus and its frequent hemorrhages, you will have some appearance of enlarged cutaneous veins near the seat of the disease, and that yellowish hue of skin which attends fungus hæmatodes, and which is very different from the look of one that has merely suffered from simple loss of blood. Although in the last stage of polypus you will, some little time before death, find the patient falling into a comatose state, this condition will generally be earlier and more decided in the fungus hæmatodes, which has probably caused removal of part of the ethmoid bone, has made its way into the cavity of the cranium, and is probably connected with disease of the brain itself; it will also sometimes make its way into the antrum and thence into the orbit and protrude the eye. You can do nothing for the fungus hæmatodes of the nose at all. A secondary venereal affection of the nose might be sometimes confounded with polypus, it is said, but the excessively fetid discharge, and the continual annoyance of the formation and discharge of crusts in the former case, with the previous history, and careful examination of the nose, will sufficiently distinguish one from the other. A polypus, instead of coming forward towards the opening of the nostril, may go backward into the pharynx. It may arise from the top or side of the nostril so close to the posterior opening that, as it increases, it finds it easier to project into the larger cavity than into the smaller; or it may arise originally from some part of the roof of the pharynx—but in either case its presence will not be suspected from the same train of symptoms which marked

it in the nose. The patient's distress in this case will be particularly in the act of deglutition, and when much enlarged it may interfere with respiration or even threaten suffocation, although not in the same way as it would in the nasal polypus.

The polypus which has its seat in the nose will often, on the increase of its volume, press on the nasal opening of the lachrymal sac, and so interrupt the passage of the tears, which will then flow over the cheek as it would in obstructions of the duct from other causes; this will not take place when the disease is in the pharynx; but when situated here it may cause deafness or ear-ache, by its pressure on the pharyngeal opening of the Eustachian tube. When you look into the mouth, if the polypus has not descended below the edge of the velum, you will not of course be able to see it, but you can observe that the velum itself is pushed forwards; if it is visible, it will in general appear of a globular shape and dark colour.

How are you to treat a polypus in the nose? There is sometimes considerable difficulty in employing the best method — namely, extraction, on account of the size of the tumour and consequent want of sufficient room for the instrument — it is also occasionally found so soft in its texture and so easily torn, that the forceps only tears it away in bits, by which the patient is subjected now and then to considerable loss of blood. On this account various caustics have been tried for its removal by ulceration or sloughing — or the actual cautery, and astringent injections. I know of no well authenticated case of success from those proceedings. When the polypus was very little vascular it has been recommended to remove it with the knife, but this proceeding has no peculiar advantages. Pressure on the polypus could effect nothing on account of the difficulty of applying it and the irregularity of the cavity, even if it could give rational hopes of success under any circumstances.

There are but two methods therefore that have maintained any ground with practical surgeons for the cure of polypus — namely, its removal by ligature or by the forceps. It is often very difficult to pass a ligature of catgut or other soft materials through the nose, in consequence their not being able to overcome the least resistance, particularly when moistened by the mucus of the cavity in their passage; to remedy this inconvenience, a metallic wire has been used, but even this has its disadvantage, for it is apt to break when its ends are being fastened by the necessary twisting.

When a small polypus has its attachment very far back in the nose, or even, as you would say, in the pharynx, you will sometimes be able to reach it through the nostrils, by making the patient expire strongly through one nostril while he compresses the other, but if the disease becomes long, this will not be possible. If, on your first trial of the extraction, you find the polypus extremely soft in its texture, it would be better to wait a little than to persevere, for it is often so in the very early stage, and will in such a condition present the difficulties I before mentioned to the grasp of the forceps, will be too easily torn to allow the twisting and pulling or drawing down,

that may be required to disengage its root — and you will find some of those that will require a good deal of force — while, by waiting a month or two, it may become sufficiently firm for your purpose, and in three or four trials you may take it away. You should choose wet weather for the operation, if there seems any likelihood of your getting your choice — but it is a matter of no very great consequence. Having seated the patient opposite to a window, that you may see what you are doing, or what you may have to do, you make him expire strongly and introduce the polypus forceps a little open, to the highest point, and grasp the polypus as near its attachment as you can; you next twist the instrument round and round slowly, drawing it steadily downwards, but not too strongly; in a little time you feel that the resistance gives way and the polypus comes out. Generally, at this moment, there comes a hemorrhage more or less considerable, and sometimes it even seems alarming, but do not suffer yourself to be confused by the occurrence, but introduce your finger at once, try if you can feel any of the disease remaining, and if you do, re-introduce the forceps and remove it; this done, the bleeding may stop spontaneously in a few minutes. Your finger may discover one or more smaller polypi remaining after you have extracted the first, and if you can, it will be advisable to remove all you can at once, but very often you will have to repeat the operation the next day or the day following for polypi left behind after the first extraction. Should the bleeding continue to a greater extent than may be desirable, you must pass up some dry lint, or moistened with a little oil of turpentine, as high as you can into the nose, and then some more until the nostril is filled, and if this should not succeed to your wish it may become necessary to plug up the nostril more firmly both in front and behind. If the polypus hangs in the pharynx, you pass in the ligature or wire through the nose, by means of a canula; you then push the ligature along the tube until it becomes visible in the mouth, lying between the velum and the polypus, you push the lower part of its loop backwards behind the tumour and then tighten the nooze. Now, there is no little importance to be attached to the *degree* of constriction you make. If it is not sufficient, the *return* only of the blood from the polypus is interrupted, it will increase very much in size rapidly, it may inflame and have to go through the whole process of inflammation, until it sloughs at length away; but if it had been large before the operation, all this may be in the highest degree distressing or dangerous, by impeding or stopping altogether the entrance of air into the lungs; whereas if the supply of blood be obstructed in the polypus by a sufficiently tight constriction, it will not increase, or inflame, but hourly grow less, until it ultimately falls off in two days, or even in less than that time sometimes. You will, however, avoid the risk of cutting through the polypus with the ligature, which might cause a discharge of blood, not always easily checked in this situation. Should the polypus not have come away about the second day, the ligature should be again tightened. Treat polypus as you will, it will be

liable to return, particularly in the nose or pharynx. It does not seem to relapse so frequently elsewhere, as, for instance, in the uterus.

### WOUNDS OF THE THORAX.

We shall now proceed to consider *wounds of the thorax*. They are divided into those which engage only the parietes — those which penetrate the cavity, and those which, having penetrated, wound the viscera contained in it. They are also divided into simple incised, lacerated, punctured, &c. As to incised wounds of the parietes of the chest, they differ but little from similar wounds elsewhere; for although they may have symptoms occasionally somewhat different, according to the parts injured, yet being a fair open cut, where one can see fully the extent of the mischief done, they cause the surgeon no particular alarm or trouble. In treating these wounds you will look carefully to the position of the arms, &c., so that the soft parts shall be as easy as possible, and that no motion be allowed in parts that might have a tendency to separate the lips of the wound, or in any way disturb the dressings, and this can generally be fully accomplished by the judicious application of compresses and bandages. Now, punctured wounds of the chest, not penetrating its cavity, are often puzzling enough, from their simulating those which have gone through the parietes, and into the cavity of the pleura, and from the extreme difficulty of tracing their course in some cases. You cannot determine anything from an inspection of the instrument that inflicted it — from the account you receive of the position the patient was in when struck, or from the symptoms which present themselves to you if the viscera be not wounded. If the man has been stabbed with an elastic sword obliquely, it may glance round the ribs for some distance, leading to the notion that the wound is one of great *depth*, when it is quite superficial, and only one of greater or less extent. The soft parts engaged in the wound collapse and fall together when the weapon is withdrawn, and a probe will never be able to follow the track of the wound; the skin, also, contracts so much, that you are astonished that so large a weapon could make so small a wound.

You are told that if the cavity be wounded, there will be great distress of breathing, the patient will have an extremely agitated and anxious countenance, his pulse will be very weak and faltering, his face pale, &c.; but you must place no reliance at all on these symptoms, for even the bravest man on getting a flesh wound in the thorax will have every one of them — every symptom that attends the opening of one of the great cavities will present itself, although the cavity is not opened at all.

One or two muscular branches of arteries, which are pretty large and numerous about the walls of the chest, may have been wounded, and a good deal of bleeding come from the wound in consequence; besides, the effect of the shock on the patient's respiration, the weapon may have wounded some of the nerves distributed to the

muscles on the parietes, that are intimately connected with this function, or the muscles themselves, and of course this will render the breathing hurried and difficult. How, then, do you escape those difficulties? What you are to do with the case is this—Keep your patient quiet, tranquillize his mind, and as soon as the first agitation is over, bleed him. You must not place any reliance on purgative medicines—they are not at all useful—they are even injurious by making the man exert himself in getting up often out of bed. Some of the arteries at the side of the chest, in the loose cellular membrane near the axilla, may be wounded, and cause tumour there; make an opening and let it out, and introduce a dossil of lint into the wound you have made. There is only this difference in the consequences of a simple parietal wound, and one penetrating into the thorax without injuring its viscera, that inflammation of the pleura or lung is more likely to follow the latter than the former; but your treatment will not differ much in the two cases.

An incised wound may be made with a sabre, between the ribs or at right angles with them, or even cut one or two of them quite through, and in either case enter the cavity of the chest, and this may happen without any wound of the lung. Now, what do you see in this case? Why, you will see sometimes a portion of the edge of the lung thrust out of the wound at each expiration; the chest being compressed during that act forces out the lung. If, in forty-eight hours after the injury, you see the patient with this protrusion of the lung, what are you to do? If you let it alone it will be united to the edge of the wound by the adhesive inflammation.\* It will be constricted by what might be called this natural ligature, and it afterwards sloughs off without any injury to the constitution. Adhesive plaster will not do to keep the lung from protruding in this manner, and if you see the case before adhesions have taken place, what you are to do is this—take a curved needle with a ligature and introduce the point within the wound, taking care to prevent its injuring the lung, bring it through the edge of the wound from within outwards, keeping your fingers between it and the protruding lung: when you have thus made two or three stitches of the interrupted suture, get as many assistants as there are stitches, and let each take the ends of one ligature, having put a single knot on each—then

\* In one of these cases which I had to watch closely for several hours in hospital when a pupil the protrusion appeared to be caused in this way: The patient inspired with great rapidity—a convulsive gasp, like—he then closed the glottis, and retained the air as long as he could, keeping the expiratory muscles strongly in action, but without letting any air escape, as if, it seemed to me, to press the contained air forcibly against the sides of the air-cells. At this time the lung protruded through the open direct wound between the ribs. As the lung on the wounded side must have been very imperfectly inflated by the act of inspiration, considering the size and direct course of the parietal wound, the pressure on the lung on the same side, through the abdominal muscles, must have forced some of its air to return by its bronchus, into the opposite one, the only place it could go to, the glottis being closed, and so, as it were, blow out the lung where there was nothing to resist its distension.—*Ed. of Lect.*

watch your opportunity for the lung to retire in inspiration, and instantly let all the ligatures be drawn tight; nothing but suture will do to keep in the protruding lung. I saw a case of this kind caused by a gunshot wound, and although ligatures were not used in gunshot wounds in general, they were applied here, and the patient certainly died easier than he would if the wound had not been meddled with.

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## LECTURE XIV.

Wounds of the thorax (*continued*)—Wound of lung—Axillary abscess—Wounded intercostal artery—Gunshot wounds of chest—Pneumonia—Empyema.

SUPPOSE the lung itself is wounded, how are you to know that it is so? We are told that the patient will spit up a quantity of frothy blood—that frothy blood will come from the wound—and that there will be that failing of the pulse, and general sinking which always attends wounds of the large cavities; that if we hold a lighted candle to the wound, its flame will be affected by the air rushing out from the wound in the lung. Certainly, if after a wound of the chest, we see blood coming up and discharged by the mouth, we have the best reason to believe the lung to be wounded, nor would it be extraordinary if the blood should have air mixed with it, but you need not much rely on blood, whether frothy or not, coming from the external wound in the side, for there may be this symptom without any wound in the lung; the fainting and sinking of the pulse will happen in any wound in the chest, and generally from a large wound anywhere. Now, as to the test of the lighted candle, of what value is that to you? Of not the least,—for in any penetrating wound of the thorax, air will go in and out of the external wound as well as the larynx, and the candle will show this whether the lung be wounded or not. In fact, there is no *one* symptom given of wounded lung, infallible—even the bloody expectoration. Our prognosis should at first be very guarded always, because these symptoms look as if they arose from profuse hemorrhage, although it does not follow that the patient must die; nor should we allow ourselves to be too confident of ultimate recovery, because the blood has ceased to come up. There are a great many ways by which such a case may become fatal, besides from loss of blood. This, it is true, will sometimes cause death suddenly, as by filling up the trachea, and preventing the access of air; or in a few minutes, or in half an hour, by getting into and obstructing the branches of the bronchi, or filling up the air cells or the cellular membrane of the lungs; or, at a more or less distant period, by causing phthisis, if the constitution is disposed to that disease.

One of the consequences of a punctured wound in the parietes of the chest, is the formation of an abscess under the pectoral muscle. Abscess in this situation does, not unfrequently, occur without any injury of the chest whatever, and would not claim any particular attention but from the course it often takes towards and into the axilla. When the matter gets into this space it involves some practical considerations that demand special notice. Now, matter may either form in the axilla itself, as it would in any other situation, or it may get there from other sources. It may, as I said, come from the side of the chest in consequence of a parietal wound: it may make its way from some neighbouring part of the spinal column from diseased vertebræ: it may come up from the arm, or forearm, or even the hand, in consequence of whitlow or abscess in the extremity from any cause whatever; but whether formed originally in the cavity or getting into it from other sources, it will accumulate largely before you can well satisfy yourself that it is an abscess at all. The walls of the axilla are formed behind by the scapula and subscapular muscle; in front, by the pectoral muscles; internally, by the ribs, intercostal, and serratus muscles; and externally by the humerus; below it is closed up by a fascia which, under circumstances such as we are considering, becomes of considerable strength. The cavity thus formed contains a quantity of peculiarly loose reticular cellular substance, and many lymphatic glands, besides the axillary artery and numerous minor ones, and many large and small nerves. Now, matter in this cavity will increase to a large size before it makes any great show, because of its unyielding parietes and very yielding contents, and for the very same reason an aneurism here will attain a considerable size before it meets much attention from the patient. You will in either case have no well-defined swelling, or no very apparent swelling at all for a long time; there may be pulsation in what *does* appear at the opening of the axilla below, be the case aneurism or abscess, or there may be no pulsation to be felt by the most careful examiner. The numbness, prickings, or pain in the extremity, or œdema of the limb, arising, as they do, from the simple pressure on the nerves and absorbents, will all be common to the two cases, as also the diminished volume of the pulse at the wrist in the affected side. I must defer any remarks on the case of the axillary aneurism, until the diseases and injuries of arteries come properly before you; but in the case of abscess the patient will be unable to use his limb — the elbow will be pushed out from the ribs, and the patient leans to that side to maintain this separation of the arm from the chest, at the least expense of pressure on the parts in the axilla. Well, at length after perhaps a good deal of suffering, or at least after a lengthened deprivation of the use of the limb, the collection of matter makes its way out through the lower opening of the axilla, or a puncture is made into it with a lancet, a great deal of matter escapes, and the symptoms connected with the member speedily subside. But how do things go on after this? Why, the discharge diminishes daily, until at length a very trifling quantity comes away in the twenty-four

hours ; but it also begins to alter in quality — it becomes thin, and the opening, or openings from which this gleety matter is discharged, show no disposition to heal ; they become fistulous. When speaking of acute abscesses in general, I mentioned that an important part of their treatment, when their contents are evacuated, is the employment of compression to keep the walls of the abscess in contact, so as to induce them to unite. Now, how is that plan to be adopted in the case of axillary abscess? It has been advised to put a globular compress against the lower wall of the axilla, and to keep it pressed up towards the cavity by bandages, or even a spring, after the manner of a truss. Such a contrivance can have very little effect on the general cavity which it is wished to diminish, on account of its shape and extent, and it has these disadvantages, that it keeps the arm from the side and the pectoral muscle from the chest ; and, moreover, necessarily prevents the escape of the discharge by pressing on the openings through which alone it could come. A much better plan is to place your compress over the pectoral muscle, and to keep the arm bound to the side by a roller.\*

For the treatment of the fistulæ when they establish themselves, the usual methods may be had recourse to — viz., opening them freely with the knife, or injecting them with some stimulating or astringent fluid. From the great importance of the parts occupying the axilla, and the perilous chances of cutting here and there among them, the treatment by injection might get a trial at first, but if, after a reasonable time, they seem to be ineffectual, you must employ the knife.

What is the danger with which a patient is menaced whose lung is wounded? When you are called in you cannot know his danger, except, indeed, some of the large vessels at the root of the lung are wounded. The patient cannot breathe unless in the erect position : he is throwing up blood from his mouth in large quantities : it is rather flowing out than being spat out ; after a little time this flow of blood gets less and less : but the patient dies, not, as is often supposed, from the loss of blood, but from the blood filling up the trachea and bronchi, and being poured into the interlobular cellular substance of the lungs themselves. If the wound is to end favourably, the quan-

\* From anatomical observations, it appears that the mode of diminishing the cavity of the axilla to the smallest possible size would be this: — Push back the shoulder as far as possible, and depress it a little — this will bring the concave surface of the scapula (or rather the muscle filling up that concavity) close upon the convexity of the ribs behind, while it lays down the pectoral muscles flat upon the ribs in front, and the upper part of the humerus is brought as close to the side of the chest as possible ; a compress over the pectoral muscle will then complete the diminution of the cavity to the greatest extent that it will admit of. It will be recollected that when the shoulder is carried forwards, it describes a portion of a circle of which the clavicle is the radius, and the sterno-clavicular articulation the centre, and that in the motion of the acromion forwards, the humerus and inferior margin of the scapula quit the convexity of the ribs at a tangent, as it were, and of course enlarge the cavity of the axilla, for the pectorals are drawn away from the chest in front by the same movement.—*Ed. of Lect.*

tity of the blood diminishes a little, next comes saliva mixed with blood, and finally, the blood is only discharged at long intervals, and soon stops altogether. But the breathing is not relieved all this time—at least not much. Now, suppose we are called in while this profuse bleeding is coming from the mouth, what are we to do? The very best thing we can do is to make the patient faint, and thereby to cause a coagulation of the blood. Whenever blood is poured into cellular membrane, like that which enters into the composition of the lungs, it always coagulates. Well, we induce this fainting by bleeding, and here the bleeding from the arm must be large in quantity and suddenly drawn. The patient's friends may say—"He has already lost a large quantity of blood, and is still losing it, why therefore would you take more blood from him?" But do not be deterred from your purpose by anything that may be said or hinted, by those who cannot understand your object: there is nothing else to save the patient's life. When you open a vein in one arm, if it does not bleed freely, don't hesitate to open a vein in the other, and you must not be satisfied with a small orifice, for ten ounces of blood, taken away suddenly, will cause fainting, when it would take twenty ounces to produce the same effect if taken slowly. You *save* blood and the patient's strength in proportion to the freedom with which the blood flows from the vein. But suppose you succeed in lessening or stopping the flow of blood from the mouth, may you relax your vigilance? No, indeed, for in five or six hours it may break out afresh, and you should be on the spot to repeat your venesection instantly; it may return several times—in six, ten, or twelve hours, and at each recurrence you must be ready with the lancet; even at every new fit of difficulty of respiration you will bleed if possible—anything to avert hemorrhage from the lungs.

As I before said, although you stop the flow of blood from the mouth, you do not relieve his breathing, nor can you do anything for the dyspnoea but to keep your patient perfectly quiet; let him not speak a word, but call for everything he may require by signs. Anything that makes a patient in this state exert himself, such as must follow the exhibition of a purgative medicine, will do great mischief. Indeed, purgative medicines in these cases always do harm, even independently of their obliging the patient to use exertion, or of being moved by others, during their operation; and, as for any good they can do, I believe there may be doubts. You might perhaps order him a diaphoretic medicine, but your great object is to lower the circulation. If your first bleeding fails to stop the hemorrhage by the mouth, you must repeat it in five or six hours.

With respect to the difficulty of breathing, you are told it proceeds from blood getting into the cavity of the chest and pressing on the injured lung, on the mediastinum, and, through this, on the sound lung, and you are directed to make an incision into the cavity of the chest to get this blood out, if the wound be not large or convenient enough for the purpose. This is all visionary, and I am convinced the

men who direct this to be done never practised it themselves; for what will the surgeon who has drawn his views of the matter from actual practice tell you? Why, that this effusion of blood into the cavity of the chest is, by its very pressure, of the greatest service, it keeps the lung collapsed and motionless, and these are both essential to the healing of the wound in it; nor is the pressure of this blood less useful to the maintenance of respiration in the lung on the uninjured side, by affording resistance to the sound lung, so that the expiratory muscles can effect the compression, necessary to expelling its air, when it requires to be removed. So long as the blood in the cavity of the pleura keeps the lung empty and compressed, so long will the bleeding from the wounded lung be controlled, and hopes may be entertained of its final cessation altogether. But independently of these opinions, what would the practical experience of such proceedings teach? Why, just this — that if you take your instruments and let this blood out of the cavity in which it lies, your patient instantly drops down dead, as if some large bloodvessel had been opened. But again, we are told that the confined blood may have coagulated, and that being determined to have it out by some means or other, as it will no longer flow out of itself, we are to make our opening between the ribs, and if the blood should not come out in the fluid state, we should take a large syringe and inject a pint of warm milk and water and wash it out! Why, any patient who could bear a pint of fluid to be injected into his chest, could have been in no danger before the operation. The fact is, you *could not* wash out the coagulum if you were to try. Suppose there were no other grounds of objection against so absurd a practice, would it not be enough to recollect, that a clot of blood is not capable of being dissolved by anything you would dare throw into the chest.

A great deal has been said, and a vast deal of ingenuity has been expended upon the subject of wounds of the intercostal arteries, by surgeons, or rather surgical writers. I know no subject on which so much has been advanced with, obviously, so little observation from real practice. The fact is, the intercostal arteries can hardly be injured in these wounds of the chest, they are so protected by the ribs; but in cases where one of these arteries has been wounded, it will not bleed into the chest, but outwards — and those who have written from practice tell us that no one ever died of effusion of blood into the chest from a wound of an intercostal artery — and what is quite as true, no one ever died of hemorrhage from this artery when it bled outwardly.

*In gunshot wounds of the thorax* there are not the same causes for apprehension as in others; what you have to fear most in injuries of the lungs is hemorrhage. Now, suppose a musket or pistol ball has gone through the thorax, you will have little bleeding, and why? Because the ball has suffered such a diminution in its velocity by the resistance it met from the parietes, that it only lacerates the soft tissue of the lungs, and by this laceration the bleeding is in a great measure prevented, and therefore it follows that this kind of wound is much

less dangerous than a less extensive wound given by a small sword. It is to the loose soft texture of the lungs that this safety is owing; for if the substance of the lung was harder, the ball would *contuse* it instead of lacerating it. From the same cause also comes the remarkable circumstance that we very seldom see sloughing of the lung from gunshot wounds; any sloughing that occurs is in the external parts, which suffer like any other parts from contusion. It is with great astonishment some read of a man whose thorax was transfixed by the shaft of a gig, which absolutely pinned him to the wall, and had to be drawn back again through his chest, yet the man recovered. Now, I see nothing at all surprising in the matter, and I doubt very much if there was not less danger in this accident, than if the man was pinned to the wall by a small sword, and for the very same reason as in the case of the gunshot — namely, the laceration it produced. Hemorrhage is our more immediate source of apprehension from a wounded lung, and lacerated wounds are the least, of all others, inclined to bleed. I do not mean to say that all gunshot wounds of the lungs are absolutely exempt from the dangers of hemorrhage; if the ball goes through the lung near its root, where the blood-vessels are very large, there may be hemorrhage, and that even so violent as to cause instant death; I merely intend to say that those wounds are less subject to it, than simple incised or punctured wounds. There is another process that prevents bleeding in gunshot wounds of a lung, it is that lymph is quickly poured into the cellular membrane of the lung which closes up the wound or passage of the ball; if undisturbed this becomes a permanent obliteration of it, and the lung will soon resume its functions. If the surgeon is not too busy with his fingers or probes — too curious to know what will be of little use, the wound in the lung may be united to the external wound, and nothing from the former can fall into the cavity of the pleura.

But although hemorrhage is less to be apprehended from a gunshot wound in the thorax, yet this kind of wound has dangers peculiar to itself. The ball, for instance, may carry in with it foreign bodies, as pieces of cloth, &c., into the wound, and in three or four days, perhaps, there comes on a purulent expectoration, and a discharge of pus from the wound, or it may come from the wound alone, and this goes on from day to day, and until that foreign body makes its way out, the patient cannot be well; if he happens to have a tendency to consumption, he inevitably sinks under this. But if he is a strong healthy man the presence of the foreign body will not cause *him* to get phthisis, but the constant irritation will excite a hectic fever, which will disappear on the discharge of the substance that produced it, and the patient gets well. This fact shows strongly the constitutional nature of pulmonary consumption. Well, after the discharge has continued for, perhaps, three or four months, the wound may heal up, but we see things are not exactly as they should be; we see that the discharge from the wound has not ceased gradually, as it ought to have done, previously to the healing of the wound, if every thing was right; we see that his breathing is not better — he gets feverish,

restless, and uneasy, and in three or four days the wound may break open again — again it goes on discharging — running the same course as at first, and perhaps heals up again, and again breaks open and discharges as before. Now, what are we to do in this case, to remove the foreign body which keeps up this state of things? The French surgeons tell us we must draw a seton across the chest, and even sometimes fasten bits of linen cloth at intervals on the cord, or tie knots on it, and drag it through the track of the wound. Now, if the track of the wound was as straight as a gun-barrel, there might be something in all this, and if the ball was lying across the canal of the wound; but the fact is, the course of the ball may not be straight, or there is a recess off the canal in which the ball or other foreign body lodges, and of course a seton, passed through the wound, could have no effect whatever in dislodging it from its situation. All you can possibly do for the patient in this case is — to order him into good air, give him good nourishing diet, &c., and wait patiently for the natural expulsion of the foreign body. When a ball enters the *spine* it is invariably fatal; sometimes by the injury it does to the spinal marrow, and often by the mere irritation of the bony disease.

After a wound in the chest, inflammation of the lungs may come on; how are we to know when this inflammation begins? There is no such thing as a prominent symptom to indicate the commencement of inflammation of the substance of the lungs, after a wound in the thorax; they come on so insidiously that they never will strike the surgeon, unless he is absolutely on the watch for them — unless he is constantly looking out for them, and if he waits until he witnesses a striking symptom, he will have waited too long to afford effectual assistance. You know your patient has been suffering for some time from difficulty of breathing, more or less pain in the side, and some degree of feverish disturbance. Now, in this state the chances are fifty to one that the first symptoms of inflammation of the substance of the lungs are unnoticed, not only by the surgeon in attendance, but by the patient himself; for even in cases where there is little to distract the attention, as where pneumonia comes on from cold, the first symptoms are so obscure, are accompanied by so few well marked, inflammatory symptoms, and are attended by such trifling distress comparatively, that some days may elapse before the fact develops itself satisfactorily.

If, after the third day, the patient complains to you, or that you find on inquiry, that he has a pain in some particular part of the thorax, which he is generally able to point out with his finger — this pain, not a continuous one, but occurring particularly during inspiration — if he has an irritative cough — you will lay your hand on his skin, and you perceive in it a harsh, dry, hot feel. You may not, and much oftener will not, perceive this sharp heat in the skin immediately that you lay your hand on it; you will have to keep your hand there a considerable time before you feel it perfectly; his pulse will give you little or no insight as to what is going on, for although it may be quicker than natural, it is still without that hardness which

you find in other inflammations — the moment you find these symptoms together, you may be sure pneumonia has begun; you must immediately bleed him, and adopt other means of arresting the evil; if you wait for anything more decisive, you are too late. On dissection, you find the pleura lined with coagulable lymph, and adhesions formed: or you may find an effusion of serum or suppuration may have taken place, and you may find pus formed in the substance of the lung, or lying in the cavity of the pleura, or there may be a circumscribed abscess somewhere in the cavity. After the matter is formed it may become diffused in the cavity of the chest and retained there, or it may get exit by the external wound, or it may make its way into some of the bronchial tubes, and be discharged from time to time by coughing, or it may burst suddenly into the trachea and produce instant death.

The ushering in of this suppuration is marked by much more decisive symptoms than was the inflammation which preceded it; you will have the irregular rigors, profuse sweats, and other signs of suppurative fever, and we cannot be in any doubt but that the matter is formed, and if it be in the bag of the pleura, we are told we must let it out. But, as it is not always in the bag of the pleura, how are we to discover that it is there at all? We are told that the patient can only lie on the side of the chest in which the matter is — that the ribs of the affected side are divaricated, and form a projection — that we can hear a gurgling noise in the chest on the patient's moving quickly or is shaken; but matter has been found in the chest after death, where not one of those symptoms had been present; and, besides this, every one of them are better marked when water, not pus, is in the chest. Sometimes, too, the patient can lie better on the side opposite that in which the matter is, and I have seen such a case; sometimes there is no gurgling noise, and sometimes you can hear it without either pus or water being in the chest. I saw a remarkable and somewhat ridiculous instance of this in the Edinburgh Infirmary, where the opinion generally was that there must be either water or matter in the man's chest; all the pupils heard the noise distinctly, and the man was very much teased with the frequent examinations and shakings he underwent. However, Dr. Hamilton fortunately took him under his care, and treated him as he did every one, after his own plan, with purgatives, and the man got perfectly well; but the gurgling noise continued notwithstanding, and does to this day if he be alive. The whole cause of the noise was in his bowels. As to divarication of the ribs — the disease must have existed a long time before this will be evident.

An abscess will point between two ribs; you open it, and you may, if you please, call this the operation for empyema, although with all the pomp and circumstances of such an operation, you only get into the cavity of a circumscribed abscess, without at all entering that of the thorax. These circumscribed abscesses are produced from many causes not connected with wounds or other injuries of the chest itself — as, for instance, a woman swallows a needle, and it will now

and then happen that this needle makes its way into the thorax — after some time it approaches some spot in its walls, and as it gets to the surface, forms an abscess, which is opened, and the needle and matter are discharged; but there is no communication between the cavity of the pleura and that of this abscess, and yet some would call the puncturing this little collection of matter the operation for empyema. You should be guarded how you undertake paracentesis of the chest, for all the symptoms of collections of matter there are very equivocal, and the most experienced surgeons have failed of success in the operation much oftener than they have succeeded. But as these abscesses or wells of matter *have* been evacuated, and the patient got well, as you can hardly make the patient's condition much worse — as you may be urged to attempt something for his relief, you may perform the operation for empyema, taking care, however, to warn his friends how very slight a chance it is in your power to give him. You should not forget that these cases may get well of themselves — that the matter may make its way into the trachea, and be gradually evacuated by expectoration, his respiration growing more free from day to day — that it may be spontaneously discharged externally, or take other and even safer routes, and your knowledge of the possibility of this favourable turn of affairs will check your disposition to use any active measures prematurely, which might compromise your own character without much chance of benefiting your patient. Should you find that nature is removing the matter, you must support the patient's strength by tonic medicines. If there be great debility, the recovery will be very slow; should the patient be disposed to consumptive disorders before the injury, his chance is next to nothing in whatever way he may be treated. You will, however, be cautious in giving him bark or other powerful tonics, if you discover that his lungs are tuberculated, or any other sign, that, without the occurrence of any accident, he was likely to suffer from idiopathic disease of his lungs.

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## LECTURE XV.

Wounds of the thorax (*continued*)—Empyema.—Injuries of the abdomen—Contusion—Incised and punctured wounds—Wounded intestine.

CASES will occur now and then, where it will be necessary to evacuate matter contained in the bag of the pleura, although such are not so frequent as you might be led to think, the operation for empyema is easy enough to perform, but the place in which you are to make the opening is the great difficulty to decide on. Some direct the lowest part of the cavity as the place, but this, as we shall see by and by, is the very worst place that could be selected. If you dilate the wound, as others advise, you only break up the recent continuity

formed by the adhesive inflammation without getting into the cavity of the chest at all. When the yeomen were the lords of the creation in this city, one of them took it into his head to shoot a bullet through the chest of a poor old woman that was walking along the street; matter formed in the pleura, and after some time attempts were made to evacuate it where the original wound was, but without success, and an opening had to be afterwards made in another situation. The woman died, and, on examination, it was evident that from the thickness of the intervening new structures, and the distance of the matter from the wound, it would have been next to impossible to come near the matter there. You are directed to make your opening between two particulars ribs; but if there should be emphysema present, you will not be able to feel a rib at all; or there may be such œdema as to hinder your distinguishing the ribs, and of course they can, in such cases, be no guide to you, and such cases are not unfrequent.

Speaking of emphysema, which you know is air driven into the cellular membrane, it has sometimes been fatal, and how? We are told it is by the air in the cavity of the thorax pressing on the lungs, and I believe it is so; the air in this affection will sometimes distend the whole surface of the patient's body down to his very toes; it is of greater extent in proportion to the smallness of the wound in the lung. I had an opportunity of examining a case, where emphysema supervened on two wounds of the lungs — one was a large one, the other not bigger than a pin-hole, and was made by a single grain of shot. I found the former quite closed by the adhesive inflammation, while the latter was the sole opening by which the air had made its way out.\* To remedy this pressure of the air on the lungs, we are to dilate the external wound, or make a puncture at the seat of the wound, and nowhere else. In this case we are not left a choice of place to make our puncture in; but when we are to evacuate matter or water from the chest we are not so limited.

The place to operate on in empyema, is, in my opinion, referable to the inferior angle of the scapula. Place your patient on the side opposite to where the matter is; place his arm of the affected side on a line with the body, the elbow being just over the highest part of the crest of the ilium; you then have the scapula fixed; then measure four fingers' breadth downwards from the angle of the scapula, and four fingers' breadth transversely from the spinous processes of the vertebræ (to get clear of the thick mass of muscles near the spine) until it meets the perpendicular line, where they decussate, there you should puncture. You are first to make an incision three or four inches long in the transverse direction through the skin, next through the latissimus dorsi, and next through the inter-

\* The student should recollect that extensive emphysema may come on without any wound of the lung or of the thorax, or in fact any wound at all. See Portal's work, Burns on the Head and Neck, Dictionnaire des Sciences Medicales, vol. xii., &c. — *Ed. of Lect.*

costal muscles, and then you get upon the pleura. Now, some advise you to tear through the pleura; but in many of these cases the membrane is thickened by disease, so as to be several inches thick, and you might be tearing until you were tired before you could get through. I once operated for this empyema, and I had to cut cautiously through the pleura until the whole knife was in the wound. The moment you get into the cavity of the chest, and that the air enters, the patient gives a great convulsive gasp or two, but this goes off directly.

Where the operation is performed for hydrothorax few recover from it, as the lung is diseased and solidified; in less than a month after you perform it in this case, for a child suppose, you will find there will be a second accumulation which will require your attention. The operation for empyema is sometimes successful, but not in one case out of ten of those of which you read. I am convinced that many cases given to us as evidences of success, were simple abscesses of the lung, which, on being let out, did well, if the patient's constitution was good. There is one case where a most serious mistake may be made in our diagnosis of fluid in the chest. I was once called into consultation with some of the most eminent men of the profession, on a case such as I allude to. The patient had every one of the symptoms laid down as indicating a collection of matter in his chest—there was great dyspnœa—difficulty of lying on the side—divarication of the ribs, &c. Every one present, myself among the rest, agreed that the operation was proper and necessary. Well, it was performed, and what was the result? Why, the case was found to be fungus hæmatodes of the lungs. This was a circumstance I never could have suspected.

I stated that the lowest part of the chest was the worst place to open the thorax at, and so it is, for the ribs and diaphragm lie so close to each other here, that the surgeon may go on cutting deeper and deeper, until he finds at length that he is really cutting into the substance of the liver. Some abscesses of the lungs will cause a divarication of the ribs, and even a pointing between two of them, and an opening may be made into it, and the matter be discharged; but the abscess must be quite superficial; for of course no man in his senses would think of cutting through any thickness of the lung to evacuate an abscess in it. After the operation for empyema no particular treatment is required.

If the wound in the thorax grows fistulous, and continues to discharge profusely, you may be certain there is some foreign body there keeping this state of things up. If the discharge from this wound suddenly diminishes, and the opening shows a disposition to close you must keep it open, to prevent extravasation into the cavity of the chest, and this may be done with a common canula, but if the discharge gradually diminishes, and the wound begins to heal, you need not, under these circumstances, interfere.

There are complications in certain wounds of the thorax of which I can have little to say, because little or nothing can be done in these

cases. The diaphragm may be transfixed through the chest, and it is said hernia of the stomach or colon may occur through the opening from the abdomen into the chest ; nothing can be done here. The great vessels of the heart may be wounded of course, but this will be instantly fatal. The ventricles of the heart itself may be wounded, and though the injury will be certainly fatal eventually, yet if the wound be small, the patient may live for five or six hours, or even half a day.\* Anything you can do, however, will not retard, much less prevent the fatal termination.

I believe it was the death of Lord Nelson that introduced the discussion concerning the propriety of cutting out a ball when lodged in the spine ; where a ball enters the spine, I think the case quite hopeless, and if you did cut out a ball — supposing the thing always possible — you would not add a day to the patient's life.

#### INJURIES OF THE ABDOMEN.

We shall now pass to *Injuries of the Abdomen*. — Wounds in this region admit of the same classification as did those of the thorax — viz., those affecting the parietes only, and not entering the cavity — those entering the cavity, but still only injuring its walls ; and lastly, those which, having penetrated, have injured some of its contained viscera. They are also divided into incised, punctured, contused, &c. Contusion on some parts of the abdomen may cause instant death in a way not very easy to understand. A man gets a blow, say, over the region of the stomach ; he drops down, and in a few seconds he is lifeless, and when you come to inquire the nature and extent of the injuries the parts have received, you do not detect a single lesion that could account for that man's death. But contusion, without any external mark, may rupture some of the hollow viscera contained in the abdomen, or even some of the solid ones which contain a great deal of blood in their structure, as the liver, spleen, or sometimes the kidney. The contusion may also rupture the vena cava or some other of the large vessels traversing the cavity ; but these cases are beyond your aid, and the last of them is almost instantly fatal. Although sometimes a blow of no great force will produce any of those internal injuries, the worst results from musket or cannon balls, which, nevertheless, may leave no external mark. On the other hand, a man in a duel, suppose, may receive his adversary's ball at the abdomen without its having penetrated — the part struck is contused, and a tumour is soon seen on the part, yet after the first shock is over, the man suffers little or nothing, and the whole cause of alarm may be owing to the ball having struck his watch, or a piece of money in his pocket, or any other hard substance lying between the ball and the skin, and if not officiously meddled with, is found

\* There is a preparation in the Museum of the College of Surgeons, of a small penetrating wound of the left ventricle, the subject of which survived for three days after the injury. — *Ed. of Lect.*

to be of no consequence whatever. A wound from a sword or bayonet may traverse the layers of which the abdominal parietes are composed, without entering the cavity, and if the weapon does enter the cavity, it may not injure any of the viscera. Superficial wounds of the belly are to be treated like simple incised wounds in any other situation. You may bring the edges together, and retain them with strips of adhesive plaster, and put the patient in the best position you can to relax the parts; you keep him perfectly quiet; you give a laxative medicine; if you deem it necessary take some blood from his arm, and watch carefully any untoward occurrence that may arise; but this kind of wound here does not differ from similar wounds elsewhere.

Suppose a man receives a stab from a knife, can we tell whether it has penetrated to the cavity of the abdomen or not? Why, we are told to put the patient into the position in which he was when he received the wound, and then to examine the depth and direction of the wound with the finger, or a bougie or probe. You never could ascertain the fact in this way, because the walls of the abdomen are composed of many layers not strongly attached to each other, so that the instrument may go to a considerable extent between those layers when we think it has surely entered the cavity. But, besides this, there is no use, but great danger in all this poking of the wound, if the instrument has really entered the cavity of the belly, as we shall see presently. Recollect if you push in a probe, or any thing else, when one of the viscera are wounded, the patient must die. A man, we will suppose, gets a stab which penetrates but does not injure the viscera, and there appears no bad symptoms—is this man safe? No. He is in very great danger, for inflammation may take place in the peritoneum; this may become diffused and the patient die; if, however, the peritoneal inflammation is circumscribed, adhesion may take place, and the patient may recover. When such a wound heals, we should tell the patient that he will always be subject to a little swelling protruding at that spot—in fact, that he will always have a rupture there; even if the muscles heal ever so perfectly the hernia will take place, for there is nothing restrains the protrusion of the abdominal viscera but the peritoneum. I saw a corporal who had a hernia in the lumbar region, near the spine, where the peritoneum had been injured, without any external wound in that situation, and certainly if muscles were capable of restraining a hernia, there were here plenty of strong ones, but they did not prevent it.

Sometimes in penetrating wounds there will be no protrusion of the viscera, and this can be explained by the omentum lying between the bowels and the wound, contracting adhesions there, and in this way acting as a kind of valve to prevent the exit of any thing from within; there generally is a protrusion of the bowels, however.

A penetrating wound of the abdomen may be the *indirect* cause of a fatal inflammation of the peritoneum, as in one case I saw; it was a wound of the epigastric artery. In this case there appeared more

blood coming from the wound than I thought should come from such a one; the exact occurrence, however, was not discovered in time, and the patient died of slow inflammation of the peritoneum, of the diffused kind; the quantity of blood effused in this case was really very small — barely enough to separate the peritoneum for a little way, yet its presence produced the inflammation. If the wound be a punctured one, how are we to know if the bowels are injured or not? We are told that fæces will appear at the wound, and certainly if they do, it is a proof, and the only real proof, that the intestines are wounded. You are not to trust to the appearance of blood in the *stools*, for the quantity of blood from a wounded bowel must be very small, and the feculent matter, in that portion of the intestine wounded, may not be expelled for two or three days; but with the great uncertainty that must exist as to the state of the viscera in these wounds, it fortunately is of no consequence whatever, in a practical point of view; for whether the intestines be wounded or not, the treatment must be the same. If a portion of the intestine be wounded, adhesions may form around the wound, connecting it to some neighbouring part, and extravasation be effectually and permanently prevented, and the patient do very well; but if, in your anxiety to know the whole of the mischief that has been done, you go on searching with probes, &c., you disturb the adhesive inflammation that nature is perhaps setting up to prevent extravasation, and you will certainly destroy the patient. No matter how small a quantity of fæces is extravasated into the peritoneal cavity, diffused inflammation must follow. Do not, therefore, meddle with the wound, not even to handle it; there is no excuse at all for touching it; it can only serve to gratify an idle curiosity without doing any good, and will put the patient's life into great hazard.

If an intestine is wounded, the fæces will sometimes be discharged by the wound, and sometimes not; we cannot tell why this is the case, but so it is. When the fæces do appear at the lips of the wound, is the case more dangerous? No; it is no less so, because there is then free exit of the matter, and less danger of extravasation. All you have to do is, to keep the bowels soluble, and after the first shock of the injury is over, to bleed the patient. Suppose a man is run through the belly, and in six hours after there appears a softish tumour about the wound, what is the nature of this case? It is an effusion of blood from some pretty large vessel, but it is circumscribed, and in a few hours that blood is surrounded by a cup of fibrin, and after this is formed it cannot become diffused. The patient may recover of this in two ways — either the blood will be absorbed, or the suppurative process will be set up, and the blood be eventually discharged externally. If you attempt to let out this blood on the second or third day, you will bring on inflammation, but after several days have elapsed, when the parts are ready for the healing process, it may be let out by the lancet as in other cases of the kind. We read in books on military surgery, that when blood is poured into the cavity of the abdomen from a wounded vessel, it is

always diffused, but we can account for this by the peculiarity of circumstance attending military practice often. The patients have to be moved from one place to another, perhaps, before the second day, when the army is advancing or retreating, and this prevents the adhesive inflammation taking place, to circumscribe it; but when the internal hemorrhage is considerable, the adhesive inflammation certainly does not take place. Suppose a man shot in a duel—the ball enters the abdomen and wounds a large artery—he falls and faints—presently he recovers out of this—but his pulse is remarkably variable; sometimes it is strong and bounding, again it becomes weak and thready: the hemorrhage is here considerable. The bounding pulse, which always accompanies hemorrhagic action, indicates that the bleeding is going on, the patient then gets weak, and it stops—very soon he rallies again, and again it goes on, and at length he dies. A man gets a contusion in the abdomen from a fall, and a pretty large tumour forms, how are you to know whether this is caused by blood or *fæces*? A collection of *fæces*, in such a case, never forms a *large* tumour, it must therefore be blood. This patient may recover; but all you can do for him is to bleed, bleed, bleed.

There is a case you will often meet with, where, in a penetrating wound of the abdomen, a portion of bowel and omentum protrudes. You examine both, and you see they have received no injury; but their appearance is not the same in the living man as they would be in the dead subject. In the latter, if you make an opening into the abdomen, and draw out a piece of intestine, it lies flat and flaccid, and from your observations you might suppose there could be no difficulty in returning a protruding bowel in the living subject, and indeed you might be right in your conjecture if the parts engaged were in a similar condition; but in these cases of wounds you find the bowels, although perhaps coming through a very small aperture, are greatly distended with air, and you will find that it is a very difficult matter to get them back again into the abdomen. What are you to do then? Some tell you to prick the gut with a needle to let out the air, but this is all nonsense; for, if you were to use a very small needle for the purpose, no air would come out, because the mucous membrane immediately closes up the little orifice, and if you use a large needle, you excite inflammation, and leave an opening for other matters to escape too. If you attempt to push back the bowels through the opening by which they got out, you will not succeed, but will probably do great mischief to the bowels themselves; you are therefore to enlarge the opening, as the only means of accomplishing your object. Now, in what direction are you to do this? A good deal must depend upon the situation of the injury, and the direction of the original wound: you would not willingly cut across the fibres of the rectus muscle, if cutting in the direction of its fibres would answer as well; then, if the wound is straight, and of some length, you would prefer enlarging it at one of its extremities; if the wound be made, suppose in the side of the abdomen by a cow's horn, you would save most muscular fibres from division

by enlarging it somewhat transversely, and if omentum be protruded with the bowels you may as well make your incision downwards to avoid the omentum. The operation is done in this manner: you get an assistant to keep the intestines out of the way, and introduce your nail (for you cannot introduce your finger) as far as you can into the wound, and on this a probe-pointed bistoury, take care not to pass its button beyond the end of your nail, against which it rests. Whether you employ a flat piece of silver, or a director, or your finger to guide the knife, watch well that the intestine or omentum does not wrap itself round it so as to get in the way of the edge of the knife; you can then divide the constricting parts just enough to enable you to get in your finger, and let it afterwards direct the knife. Now, when you have enlarged the opening to the proper extent, you would be inclined to think that it would be a very easy matter to return the protruded bowels, but this is really not the case. Unless it is managed properly, you will find that for every bit you put up, twice as much will come down; when you return a portion then, lay the fingers of your left hand on the opening while you are grasping another portion with your right hand to return next. There is one manœuvre which I have seen tried, against which I would caution you — namely, pulling a little of the intestine down out of the wound to enable you, as you might think, to get up some of the air that distends that which has been protruded; but this would only add to your difficulty, for what you draw out immediately gets as full of air as any other part, and will give as much resistance to its return again into the abdomen. Should you find the protruded intestine in an inflamed state, you must nevertheless return it of course. Should the injury the bowel received by bruises or constriction have caused gangrene in a part of it near the wound, adhesions will have formed between the gut and the wound which you must not disturb, but leave nature to throw off the slough, and perhaps effect a cure. Sometimes a good deal of omentum presents itself, and this, if uninjured, you will also return, having previously spread it out carefully not only to ascertain its condition, but lest it might be gathered round a portion of intestine, which it might continue to constrict firmly after both had been returned into the abdomen. Should one of its arteries be wounded put a ligature on it, and let its end hang out of the wound.

Should a portion of the protruded intestine appear flaccid, instead of being distended with air, examine that portion carefully lest its flabbiness be owing to a wound in its coats. It is always suspicious when it does not retain its rounded figure. The intestines are seldom wounded by the weapon on its entering the abdomen, but more generally by a second blow after it has escaped from the cavity. After the protruded parts have been returned fairly into the abdomen, how are we to manage the wound in the parietes? I mentioned that in a wound where there is no escape of the viscera, and when we cannot be certain whether the instrument has penetrated the cavity at all, we should dress it with sticking plaster as if it was a simple

wound of the parietes, but where intestine has come out, we must in every such case use sutures ; the ligatures must go through the thickness of the skin and muscles, but should not by any means include the peritoneum.

Care must be taken that while you are, as you suppose, returning the intestines back into the abdomen, you are really not pushing them into the sheath of the rectus muscle. Do not think this an unnecessary caution ; I have seen two-thirds of the bowels protruded, pushed up into the sheath of the rectus, before the mistake was discovered. Before you return the protruded intestines you will examine them carefully but as gently and with as little delay as you can : if they have dust or gravel on them, you will wash it off with warm water. Should one of the vessels of the intestine be wounded, just put a ligature on it, and cut their ends close and so return it into the abdomen. If the omentum be injured cut off the piece with a sharp knife or a pair of scissors, and if any vessel should bleed, take it up with a ligature and return the rest of the omentum. If no vessel should bleed at the time of your incision, you may return the omentum at once into the abdomen without any dread that it will bleed internally, for should any vessel in the cut surface have a disposition to bleed, the natural pressure of the surrounding viscera will prevent it. Suppose you are called in to a man who has got a stab in a drunken quarrel, that he has lain out in the streets all night, and that in the morning when you come to see him you find his bowels protruding from a wound in his abdomen, you examine the intestines and you find one of them wounded, what are you to do ? You know from the circumstances that inflammation must have commenced in the part, and you see that it is so. Are you then to set about immediately to sew up that wound in the bowel ? You are not by any means to do such a thing, for no union could take place, and your attempt would only aggravate the already existing inflammation. Suppose you see a patient so soon, after the injury, that the parts offer no fair objection to a trial to procure a union of the wound in the bowel, still you will find the sewing of it up a very difficult undertaking. • The state of the wound is this — the muscular coat of the gut has contracted, and the mucous membrane, which has no disposition in the least to contract, and which is naturally so loose and abundant, is squeezed out of the wound, and as fast as ever you push it with your finger back into the canal from whence it came, out it comes again, sometimes before you can withdraw your finger. Now, under any condition you will not be able to make two mucous surfaces unite with each other, nor a mucous with a serous surface, and before you can bring the lips of the wound in apposition, without any interposition of mucous membrane, the whole of what has been squeezed out must be returned, and retained out of the way of being pricked or torn by the needle. To remedy this difficulty it was proposed to pass a piece of card rolled up into a cylinder into the cavity of the intestine, and to draw the outer coat over it, and then to begin sewing it up ; another contrivance was to

introduce a piece of tallow candle into the bowel with a similar view, and to leave whichever you employ to be afterwards expelled by the natural action of the part. Although the difficulties in keeping the lips of a wound in a bowel in apposition, are not much exaggerated by writers, we shall see that their contrivances are not indispensably necessary.

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## LECTURE XVI.

Wounds of Abdomen (*continued*). — Wounds of the bowels, stomach, and bladder — Peritonitis — Paracentesis abdominis.

WE shall now suppose that, on coming to the man, you find no protrusion of the viscera has taken place from the wound in the parietes, for this will sometimes happen, but on looking closely, you see fæces coming from the wound, how far are you to interfere in this case? Any meddling with such a case will certainly take from that man his only chance of recovery; an adhesion has taken place between the wounded bowel and the external wound, it will speedily acquire considerable strength, extravasation is prevented, and there are grounds to hope a favourable termination; but if any trials be made to fix the gut by art more firmly in its position, and prevent its receding, which is quite unnecessary, or if any tampering with the wound with any other view be had recourse to, the adhesions nature began will be disturbed, the wounded bowel will be shifted, extravasation will follow, and the patient must die. The free discharge of fæces through the wound is his best chance; you will not, therefore, attempt to sew up the external wound, or dress it in any way that may confine the discharge; no measures must be taken to heal it until the fæces gradually, and of themselves, cease to come from the wound.

The danger from extravasation into the abdomen is its causing peritoneal inflammation, and it becomes a point of great importance in our prognosis to be able to determine, whether, in a particular case, the effused matter be blood or fæces; you see nothing, and are only able to judge from effects. If the peritonitis be from the escape of fæces, the inflammation invariably comes on within twenty-four hours from the receipt of the injury — never later — while that resulting from blood comes on at a much later period. In the first case the patient must die, no matter how small the quantity of fæces may be that escapes into the cavity of the peritoneum; in the latter case he may recover. Protrusion of the viscera of the abdomen in the form of hernia will always take place after the healing of the wound in the parietes, wherever the peritoneum is deficient, even though the rest of the parietes be perfect; as I before mentioned, the muscles will never resist the protrusion. You must always bear in mind that the

abdomen is constantly so full, that there is naturally no interval between the viscera, and that in those wounds, the introduction of a probe or other instrument to examine the nature of the injury will cause an interval or space for extravasation. Suppose a man gets a sabre wound in the belly, and that fæces are observed coming out from the wound, some say that it is useful to find out the wounded bowel and sew it up, and they direct that we should dilate the external wound and look for it accordingly; but remember that fæces will escape from a very inconsiderable wound of an intestine, and we might have to go over the whole intestinal canal before we found it, and even not find it with all our searching; even in the dead body it would not be easy to find it.

But suppose you see a portion of the protruded bowels with a transverse division of it, how are you to unite these again? John Bell tells you, you are to put three stitches in it, one at the mesentery, and the other two at equal distances from it and from each other; but when Mr. Bell wrote this it was his imagination, rather than experience, which directed him. The fact is, that three stitches in such a case would be worse than if you had done nothing at all; there would be a drag on these stitches; the mucous membrane would protrude between them, and the fæces escape. Mr. Travers made a number of experiments on animals, and he found that there was more danger of extravasation from this kind of stitching than where the matter was left to nature. John Thompson found in his experiments that the wounded part of the intestine often formed an union either with the sound wall of a neighbouring piece of gut, or to the inner side of the wall of the abdomen next it, and when the union was complete there was no further danger of extravasation. When you have the bowels cut either longitudinally or transversely, all you have to do is to take a small needle and a single thread, and sew the *entire* wound, from end to end, with the continued or glover's suture; you will not have occasion to put card, or candle, or anything else, into the gut to sew on or keep it open. When you have sewed the wound all round, cut the ends of the ligature close, and return the bowels. Great danger was apprehended from the thread getting into the peritoneum, on its separation, and its exciting inflammation there, but experiments prove that it never takes this course, but makes its way into the cavity of the intestine, where it can do no harm, until it is discharged in due course. Nature always gets rid of an extraneous body in the shortest and easiest way, and it was a much simpler and easier way to get rid of the ligature by the bowels, than for it to come through the parietes of the abdomen. When a musket or pistol ball enters the abdomen, and lodges in the spine, it is always fatal. I remember seeing an officer who was shot in the abdomen, and the surgeon who attended him was of opinion that the pancreatic duct was wounded, for a pint of clear fluid was discharged daily from the wound. I gave it as my opinion that the ball had penetrated the spinal canal; the officer died, the surgeon was allowed to examine him, and he sent me word that the nature of the injury was precisely as I had said.

The stomach may be wounded by the thrust of a sword, and the man recover, although the contents of the viscus may flow out of the wound externally. I recollect seeing a man in the hospital who had such a wound, and it had become fistulous; he used to take a drink, and then take out a cork which he kept in the external wound, and let the fluid flow out just as he had swallowed it. When, from the part of the abdomen wounded, and what you can learn of the direction the stab was given in, you apprehend a wound of the stomach, there will be a strong presumption that your conjecture is right if the patient be very cold; if he vomits, or tries to vomit, and if what is thrown up contains blood. The patient from such a wound is in imminent danger. It is a singular fact, that if the patient vomits or strains much, or even takes an emetic, it does not cause effusion of the contents of the stomach into the abdomen. In wounds of the stomach all you can do is to keep the patient on the smallest quantity possible of food, and make him observe the most perfect quiet. I mentioned that a spent ball striking the abdomen, but without entering it, causes contusion, and particularly if it be a large ball, and that if any of the more solid viscera should lie behind the stricken part, it may be ruptured; the liver, kidney, spleen, &c., have sustained such injury, and therefore we should be very cautious in our prognosis and care of the patient, no matter how trifling the injury may seem at first. A wound of the *spleen* is very dangerous, on account of the quantity of blood it contains. If you read Bell, you would suppose that every wound of the *liver* was mortal, but this is not the case; wounds have been received in the liver and gall-bladder, and the patients have recovered, and what is very remarkable, there has not been observed in any wounds of these parts any extravasation of bile. It is not easy to be satisfied that the liver or spleen is injured in a punctured wound of the abdomen, by conclusions drawn from the direction, or supposed direction of the wounds. If the liver should have been wounded, there will be fever, pain in the shoulder, a teasing dry cough, &c.

Gunshot wounds of the bladder are not always mortal. I saw a man who received a ball that went exactly through the sciatic notch, and penetrated the cavity of the bladder; it did not go through, but lodged in the bladder. After some time the patient found he could not make water, but after a deal of effort, a piece, or rather two pieces of cloth, which were rolled up into a ball and had lodged in his urethra, were shot out, and he then made water freely enough; but the ball still remained in his bladder, and the only inconvenience he felt was, that he could only make water while lying on his side. He could not make a drop in the erect position, and he afterwards submitted to the operation of having it cut out. Here is the ball, and although it remained twelve months in his bladder, you perceive there is not the slightest appearance of incrustation on its surface; it was not cleaned, but had the appearance you now see it to have, when it was extracted. In gunshot wounds of the bladder, urine is never effused, but the case is very different when it is ruptured by a

kick, or a fall, or a blow, &c. In such cases it always gives way at the upper and posterior part, where it is covered by peritoneum, and the opening is large. When the bladder is burst and the urine effused, the patient does not complain of any pain in the region of the bladder, but he feels an uneasiness in the chest, or, as they say in the country, "about the heart." Some time after the accident the patient feels a desire to make water, he tries to do it, and feels as if he was relieving himself, but is surprised that he does not see any coming away; if a surgeon introduces a catheter, no urine comes, and yet what is very curious, if he introduces it again in, say a quarter of an hour, urine will come away. After a little time the patient feels nausea, and afterwards he vomits, but still there is no pain in the region of the bladder. A patient with this injury will die in about ten days, generally. [Two preparations were here shown of ruptured bladder; both had given way at the upper and back part—the slit in one was transverse, and in the other vertical; one was an inch and half long, the other about two inches, but the ruptures in both were longer before they were put into spirits.\*] I know of nothing that will be of use in this case of rupture of bladder. A bullet wound in the bladder, or one with a sword, is less dangerous than a rupture from violence. It is a curious circumstance that a fluid, apparently so acrid as urine, should remain in the cavity of the abdomen several days, without causing the patient much suffering, and that the fatal termination should not take place earlier than the eighth or tenth day.

#### PERITONITIS.

Inflammation of the peritoneum may arise without any local cause, or from wounds in or about the abdomen, and is the chief source of anxiety after certain surgical operations there. Indeed, so many operations has the surgeon to perform — so many accidents and surgical diseases are there, that may be followed by peritoneal inflammation, and in which that consequence assumes a paramount importance, that it requires a special notice. Thus, the various affections of the bladder, perineum, uterus, rectum, &c., and operations on these organs, or at least most of them, would not assume the serious characters that distinguish them, were it not for their liability of being followed by peritonitis. When considering those cases individually, I shall have an opportunity of pointing out some peculiarities belonging to each, in connection with the inflammation of the serous membrane of the abdomen; at present we can only consider the subject in a general manner. It may be either acute or chronic. A child, suppose, gets a fall on his belly; he gets up and vomits; inflammation of the peritoneum sets in, and he dies in a few hours. This is an acute case, arising, perhaps, from rupture of a piece of

\* These two preparations are in the Museum of the College of Surgeons. The history of one of the cases may be found in the Dublin Hospital Reports, vol. i.—*Ed. of Lect.*

intestine high up; that arising from strangulated hernia may be either chronic or acute. Suppose a young man in full health leaps off a wall and gets hernia, which becomes strangulated, he gets acute peritoneal inflammation, and may be dead in thirty-six hours; but in an old man with an old hernia that becomes strangulated, there will arise an inflammation of the chronic kind. The inflammation is sometimes confined to a very limited space; as where a piece of intestine adheres to the neighbouring parietal portion of peritoneum, or to another piece of intestine; here the inflammation causing the adhesion is confined to one spot, and no bad symptoms or consequences follow; but this is not always, or even generally the case, for the inflammation beginning in one spot, more generally spreads through the whole peritoneal surface. Should it come from a wound, the first pain or uneasiness is felt at the wound. You are not to expect anything like prominent well-marked inflammatory symptoms in peritonitis; the first thing noticed perhaps is that the patient on making any exertion, such as coughing or blowing his nose, feels a little tenderness in his abdomen; if pressed on, the patient winces; after a little time his stomach begins to give way, he feels nausea, and shortly after vomits; his thirst at first is inordinate, and he drinks largely, but after some time, this symptom becomes less, and less drink satisfies him. His first vomitings have nothing peculiar in them, and what is thrown up is just what he has last drank; he drinks but little, yet as soon as it is down, he gets sick, and up it comes again. At a more advanced period of the disease, however, he has ceased to drink or feel much thirst, yet his stomach does not get better; he now vomits what is called stercoraceous matter—that is the *fæcal* matter from the small intestines; when he vomits at the first accession of the disease, there is the ordinary exertion in emptying the stomach of its contents, but afterwards it discharges itself with as little exertion as an infant makes to discharge coagulated milk from its stomach; he just opens his mouth, and out comes this dark-coloured or feculent matter. If there should have been no wound of the peritoneum, the pain is commonly first felt about the navel.

Constipation is so constant a symptom in peritonitis, that it is considered one of its pathognomonic signs, but although the difficulty of procuring stools is in general very great, yet we now and then meet with cases where the patient has many stools, and I have known young surgeons to say — “This cannot be inflammation of the peritoneum, as the patient has stools;” but you should not, in every case where you are told that the patient has had one or more stools in the course of the night, trust to the accounts you get from the nurse-tender, or the friends of the patient, but look at the night-chair, and you will see that nothing has been passed in general, but a little mucus each time; there may be one or two evacuations in peritoneal inflammation, but that is all. At first the pulse is full and inflammatory, but very soon it becomes very small and wiry, and generally ranges from eighty to one hundred and ten, but it is not by any means what you would think a highly inflammatory pulse; although if you examine

it carefully, you find it is not as compressible as a healthy pulse ; in fact, it is such a pulse that would make you almost afraid to bleed the patient — yet what does bleeding do ? It raises that small pulse up to the standard of what you would call a full, strong, inflammatory pulse, such as you would meet, for instance, in inflammation of the extremities. There is in this patient a peculiar cast of countenance ; his face appears languid and depressed, and is covered with a greasy sweat ; his eyes, which were a little before full, now become sunken, as if the adipose substance of the orbit had become suddenly removed, and his eyelids droop a good deal over them ; he gets that look of general sickness, or sickishness, rather, almost peculiar to affections of the abdominal cavity. He passes urine very often with pain, and tinged with blood, and generally in small quantity. If an enema be thrown up, it is either not returned, or if it be, generally without bringing away any fæces. By and by he grows very restless and uneasy ; he tosses his arms about ; at one time he throws one leg out of the bed from under the clothes, then the other, and without knowing why he does so ; his face has not the fulness which accompanies other inflammations, but his features are drawn in ; his weakness and languor increase ; the pain over the abdomen is sometimes very great, but there are intervals of remission, during which he gets a little rest perhaps. Unless the first bleeding be very large, he may get but little relief from it, or if he is relieved, it may be but for five or six hours, and then his symptoms return. These exacerbations and remissions should not be forgotten as a part of the symptoms of these cases, for if you were to come in during a remission, and stay with him but a short time, you might be led into the serious error of believing him better when he was not, and cause a delay or suspension of suitable treatment. You should stay with him an hour or so at least, to see if it was really a permanent improvement or otherwise, or inquire of his friends, and tell them to remark if his pain returned, and if so not to lose a moment in sending for you, and on your finding them return, you bleed him immediately again. You direct the abdomen to be fomented, or rubbed with warm oil. After full bleeding has been practised, and an impression made on the disease, you should give calomel and opium, in doses of three grains of calomel every three or four hours ; your clysters now will empty the large intestines, and give a stimulus to the small ones likewise to act, and you may order a gentle laxative by the mouth, as soon as you find the inflammation sufficiently reduced, and some diaphoretic, not of a stimulating nature. While the inflammation is going on, you should visit your patient every four or five hours at least. Although you will be mainly guided by the tenderness of the abdomen on pressure, yet when your treatment has subdued all the other symptoms, this tenderness will not continue to demand depletion as in the first instance. A blister over the abdomen will then be of the greatest use, and will often in three or four hours quite remove this last trace of the disease.

The disease is sometimes fatal in from thirty-six to forty-eight

hours, and sometimes not for four or five days. Do not too readily yield to despair in one of these cases, for it sometimes happens that after all the surgeon's hopes are gone, the patient suddenly improves and recovers completely.

From the symptoms alone, you would hardly believe that chronic and acute peritonitis were the same disease, yet dissection shows the same adhesions, &c., in both. *Every* symptom that would mark acute inflammation in general, is absent in that of the peritoneum; there is often no hot skin, full pulse, &c., but as you bleed the patient, the pulse expands, and *becomes* then like what you would call an inflammatory pulse.

To return to wounds of the abdomen. Suppose you see a piece of bruised intestine protruding from a wound, how are you to know it is in a state of gangrene? It is often a very difficult thing to tell positively whether it is or not. I shall have to say something on this subject when we are considering strangulated hernia; at present I may remark that there is a softness, a want of coherency, and a dulness of surface, that will excite suspicion; if you see a vein running on its surface, and that you press on it gently with the point of your finger, so as to empty it of its blood, and maintaining your compression on the portion next the mesentery, you observe whether it is filled again by the arteries, and if so, you are told there can be no mortification there. I have never seen this test tried, yet there may be something in it, but I think if the bowel be in a state of high inflammation there may be some difficulty in making it a satisfactory test. If there be a want of firmness or adhesion on the part of the intestine or lip of the wound, we must cut off the mortified part and connect the intestine by suture — the method of doing which I will have an opportunity of explaining at a future day. Hemorrhage from the large vessels, as the vena cava, porta, or aorta, may follow wounds of the abdomen of course, but it more generally comes from some small vessel, and the general pressure of the viscera will, in such cases, limit the extent of the extravasation of blood into the cavity; if the large vessels suffer, the patient dies immediately; but in other cases the soft tumour, which I before mentioned, is formed; the hemorrhage may cease for a little, and then go on again, and thus the patient may live for twelve or twenty-four hours, one time better and another worse, until he sinks finally. But suppose, on the other hand, that the vessel having poured out a little blood, ceases to bleed any more, we have still another danger to encounter, for the man may die of diffused inflammation of the peritoneum, caused by the presence of this small quantity of effused blood. I may just mention that it is possible to mistake this soft tumour caused by effused blood for a hernial tumour, or v. v., and if, from want of sufficient care in the examination of the part, this mistake were to be made, it might lead to serious consequences. Even effusion of blood into the abdomen without tumefaction might be confounded with inflammation somewhere in the cavity, as the symptoms of either occurrence are not so very well marked or precise as to remove all obscurity;

but mistaking one for the other is fortunately of no consequence whatever, the treatment of one being applicable to the other.

The wound of an intestine communicating with an external wound, and discharging fæces by that wound, is sometimes very slow in healing up; this will be what is called an *artificial anus*, of which I shall have occasion to speak more fully hereafter.

The term *paracentesis abdominis*, strictly speaking, is confined to puncturing the abdomen, to discharge the fluid accumulated in ascites. We need not inquire here more of the history of this complaint than that it is very often attended with enlargement of some of the abdominal viscera, particularly of the liver. Mistakes have been made as to the nature of the swelling of the abdomen in cases of dropsy, even pregnancy has been confounded with dropsy by the ignorant or careless; but the shape of the two swellings is not alike when looked at either in front or sideways; that of dropsy is more general, diffused, and rounded, than the swelling of the gravid uterus, and you are able always, I believe, to distinguish the more circumscribed and firm feel of the latter case. The fluctuation is always sufficiently distinct if the examination be properly made, and the way you are to make it is this: — Place one hand on the side of the abdomen, and with the fingers of the other hand, strike the opposite side smartly two or three times; the effects of your percussion will be transmitted sharply and distinctly to the hand laid on the other side of the belly. Pressing here and there is not so satisfactory, for an enlarged viscus may be pressed on and give a deceitful diagnosis. But the case may be ovarian dropsy, the fluid of which is contained in a sac of its own, and not in the general cavity of the peritoneum; as it enlarges, however, it mounts into the abdomen, and sometimes attains a very large size, and forms adhesions to the peritoneum when of long standing. Now, there are two situations particularly pointed out as the most eligible for puncturing the abdomen — one in the side, or in the *linea semilunaris*, the other in the middle line, *linea alba*. The first of these situations is liable to several objections. The liver in ascites will sometimes be found to have descended so low that it will run a great risk of being wounded by any attempt to tap the abdomen in the *linea semilunaris* of the right side; and then if it be attempted to operate in the same situation on the left side, the spleen may be endangered; for both these viscera have been known to have attained to such a size as to have reached the iliac fossa of its own side. Then there is the danger of wounding the epigastric artery, which, you know, extends from the iliac or femoral artery upwards and inwards to gain the sheath of the rectus about midway between the crest of the pubis and the umbilicus. The operation of tapping through the *linea semilunaris* should be restricted to cases of ovarian dropsy. If you perform paracentesis in the *linea alba*, there is nothing of importance you are in danger of wounding, in the ordinary state of the parts; but although in ascites the secretion of urine is greatly diminished in general, yet it may happen that this viscus shall rise up into the abdomen to a suffi-

cient height to lie right in the way of the trocar. As it might be attended with very serious consequences to plunge your instrument into it by mistake, instead of into the cavity of the peritoneum where the fluid of dropsy is, you should always first ascertain the state of the bladder before you proceed farther, and if any doubt should exist in your mind, to introduce a catheter. Having placed your patient in an arm-chair, and passed a broad bandage or folded sheet round the belly, you give either end of it to a careful person, whose duty it will be to draw the bandage tighter as the water escapes, to maintain the same degree of pressure as the vessels and viscera had sustained by the fluid: want of attention to this has been followed by serious consequences. You then make an incision with a lancet about an inch long through the integuments, midway between the pubis and umbilicus, and then introduce your trocar through the linea alba; you know when you have gone deep enough by the sudden loss of resistance; a three-sided trocar is the best for this, for the wound left by it heals very readily. Sometimes the flow of the fluid suddenly stops, and no more will come: here the omentum has been thrown against the mouth of the canula and acts as a valve. You are told when this happens to introduce a probe through the canula and push back the obstruction with it; but it is not quite safe to push at the omentum in this manner with a probe, for it is a delicate membrane, and would probably sustain such injury as to expose the patient to the risk of peritoneal inflammation. The ingenious instrument invented by Mr. Dease perfectly prevents any impediment to the discharge of the water, and of course a necessity of meddling too much with the peritoneum. You finish the operation by dressing the little wound with adhesive plaster, and tightening the swathe to the necessary extent. There is one circumstance in dropsy that will prevent the employment of Mr. Dease's trocar—namely, where the fluid is so thick that it will not be discharged through any but a full-sized instrument, as is often the case in general ascites, and almost always so in ovarian dropsy.

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## LECTURE XVII.

Wounds of Tendons.—Hernia—Divisions of—Causes of—Diseases resembling, and diagnosis—Taxis.

*Wounds of Tendons, &c.*—I mentioned that the *structure* of a part attacked with inflammation greatly influenced its nature and consequences, and the same observation holds equally good as regards wounds and other injuries. We find, for instance, that injuries of tendons, ligaments, and such like, produce consequences and require treatment somewhat out of the common rule. In a contusion or laceration of a tendon, we have indeed little to do more than would

be necessary for a similar injury in any other part, but in a simple incised wound the case would be little different. Suppose a man's Tendo-Achillis divided across by a clean cut of a sabre, that tendon will not unite, like other tissues, by the adhesive inflammation, but it unites to the circumjacent parts by coagulable lymph; these parts after some time become thicker and stronger than they had been before, and at length attain sufficient strength to bear the strain which the tendon had to bear before its injury, the functions of the part will be restored, but a knot or tubercle will long remain in the situation of the wound. This tendon, strong as it is, is occasionally ruptured; a heavy man trying a feat of activity, or even sometimes in walking up stairs, or while walking along the street, feels something give way in his leg, or feels exactly as if the back of his leg had been struck by a stone or a stick. On examining, you find the Tendo-Achillis ruptured, or it may be only the long slender tendon of the plantaris muscle. If the tendon be snapped across very close to the heel bone, its torn ends will be separated about an inch from each other, rarely more; you will seldom be able to feel the separated ends of the tendon satisfactorily on examination. The patient is not deprived of all use of the leg immediately after the injury; a sickness comes over him just after the accident, but after recovering this he feels great pain in the part on trying to walk; he feels a weakness in it, and considerable tumefaction in the limb; in a couple of days or so it becomes black and blue, and there is effusion of blood, more or less, about a hand's breadth above the heel; on flexing the foot a hollow or deficiency may be felt in the tendon, before the swelling takes place, and if this can be perceived it leaves no doubt that it is not the tendon of the plantaris muscle that has been injured. Sometimes it is neither of these tendons that has suffered, but it is a laceration of some of the muscular fibres of the great extensors of the foot—in which case the incapacity to use the limb and the pain at any attempt to do so is even greater than if it had been the tendon that was torn across. In both cases, every attempt on the patient's part to extend the foot produces a return of the sickish sensation. Well, whether the division be by rupture or made by a sharp-cutting instrument, what is to be done for it? You cannot retain the separated parts by sticking plaster, compresses, or bandages—that's quite clear. Are you, then, to get your needle and thread and sew the ends together, or put a point or two of suture in them? Neither one or the other would at all do here; the part would become inflamed, and the consequence would finally be convulsions, or tetanus, and death. You must then trust entirely to a proper position of the limb; you relax the muscles of the calf by flexing the leg upon the thigh, extending the foot upon the leg and applying a suitable apparatus to maintain the limb in the proper position. You will also put a roller on the leg to control the gastrocnemius and soleus muscles, the action of which would keep the ends of the divided tendon from each other, and disturb every attempt to repair the injury. Night and day the limb must be kept in the proper position for at

least a month or six weeks, and even then you must enjoin the greatest caution in the exercise of the limb, on account of the great strength of the muscles engaged. At first you should use only a gentle passive motion, and this for the sake of the ankle and knee-joints, which have for so long a time been kept in one position. You then allow a little exercise of the limb assisted by a crutch, and so proceed gradually to the full use of it.

The tendon or ligament connecting the patella to the tibia, has sometimes been torn across, but it is a much less frequent accident than fracture of the patella itself. There is no difficulty in recognising the nature of the case, and all that is to be done is to keep the leg constantly extended by a splint, to be worn day and night, to keep the patella drawn down by a bandage or strap fastened to the sides of the splint by buckles or studs, and to envelope the limb with a roller, to control the action of the four powerful muscles inserted into the patella above. You may see cases of those ruptured tendons where the patient complains of very little pain, and hardly suffers except from the confinement and constraint of the limb necessary to his cure. It will be a long time before the perfect use of the leg is obtained, for, after the consolidation of the ends of the tendon with each other is strong enough for a little exercise, there will remain a knot, and a thickening of the surrounding parts, with adhesions, that will render free motion difficult and somewhat painful.

#### HERNIA.

There is no disease in surgery that requires a greater share of your attention than hernia; that in practice demands more correct judgment or more prompt decision. You will now and then see cases in which the delay of an hour in doing what may be necessary for the patient, will make all the difference between probable safety and certain death to him.

Hernia is a displacement or protrusion of any of the abdominal viscera out of their proper cavity, and there are several situations in which the tumour formed by this protrusion may appear externally; but you are not to suppose an external tumour essential to constitute a hernia, for there are some instances, as I shall have occasion to point out to you, in which no swelling can be observed. There are several classifications of hernia — one is from its seat, such as *inguinal*, *umbilical*, &c.; another from the contents of the sac, as *enterocele* or intestinal, and *epiplocele* or omental; another from some peculiarities in their constitution, such as *hernia infantilis*, *hernia congenita*, &c.; but the most important in a practical point of view is that which indicates the state or condition of the hernia; thus they are first divided into reducible and irreducible. By the first is meant a hernia, the contents of which may be returned back into the abdomen by the surgeon or the patient himself, but which is liable to return if not prevented by art. The second is a rupture, which, from adhesions or other causes, cannot be returned, but remains perma-

nently out of its proper cavity. These two conditions of a hernia are not attended with much or any inconvenience to the patient, except from their size, weight, &c., in their simple state; although their existence renders the patient very liable to grave consequences, not only from external injuries, but likewise from the liability to fall into the next and worst state — namely, strangulation. A *strangulated hernia* is one which is so constricted by the opening through which it has passed out of the abdomen or by the neck of the hernial sac, or by some malversion of its own constituents, that the functions of the protruded parts are entirely suspended, and their own vitality endangered as well as the life of the patient.

Bell describes a kind of hernia, or rather a condition into which a hernia may fall, which he calls *incarcerated*, in contradistinction to strangulated; he is very obscure in his explanation of what he means by his incarcerated hernia, nor does it seem of much practical importance to inquire.

There are circumstances which appear to give a tendency to hernia. Some families would seem to have a natural predisposition to it; the father or the mother, and some of the children will have it. I know many instances where three or four children of the same family are affected with the complaint, and yet it does not, after all, seem in the least hereditary. When a very corpulent person suddenly becomes thinned, as from fever, &c., that person will be likely to get hernia. It is said that in catholic countries, where the inhabitants take a great deal of oil with their food, hernia is very prevalent, but I am not sure of the truth of this remark. In monasteries on the continent, they appear to be very subject to this complaint, and it is attributed to the frequent use of the kneeling posture in their religious observances: those employments which demand much bodily exertion dispose to hernia; certain urinary diseases, in which the patient is obliged to make considerable efforts to expel the urine, may cause hernia, but, what does not commonly happen under other causes, if you cure the urinary disease, you will be able to cure the rupture by three or four months steady application of a truss. Riding uneasy horses is a frequent cause of hernia, and this is shown by military returns. The number of cavalry soldiers who get rupture is two to one of the infantry: playing wind instruments sometimes causes it — in fact, anything that gives sudden shocks to the frame, or which demands great physical exertion, so as to increase the compression on the contents of the abdomen to a violent extent, is likely to cause hernia.

In some cases hernia is instantly formed, as by a sudden and violent exertion, such as leaping from a height, but in others the progress of its formation is imperceptible. A gentleman will tell you, that every time he mounts his horse he feels an uneasiness in one of his groins, but that while he remains quiet he feels nothing there, and he will come to you perhaps several times telling you the same thing, and yet never once allude to a swelling there; in other cases, there may be a little uneasiness in the groin, the patient is in the

habit of feeling it, yet he is not conscious of what is going on, so very gradual is its progress, and in three or four months the hernia will be very apparent.\* This chronic form is of the reducible kind, but the majority of those formed suddenly are irreducible, and often strangulated. Reducible hernia, after a longer or shorter period, is very liable to become irreducible, but without any change in the patient's feel in the part. The sac of a hernia is, you know, formed of the peritoneum, yet if the affection has existed a long time, this thin delicate membrane is so altered that you would never suppose, on a cursory glance, that it could have had such an origin. I have seen an old hernial sac as thick as the strongest part of the fascia lata; but on a careful dissection of its structure, you will find that the peritoneal surface itself is not thickened; the deposition is on its outer layer, which in fact is only the cellular membrane by which it had been connected to the neighbouring parts; the true peritoneum is only rendered opaque. In old herniæ in which there is omentum, this membrane undergoes a very remarkable change—it becomes loaded with fat, and has sometimes a fleshy appearance.

In the adult male the most common seat of hernia is in connection with the abdominal rings, — what is called inguinal hernia. Women are more subject to femoral hernia; but they are also affected with umbilical hernia, particularly if they have borne many children. The exact situation of what are called the abdominal rings must be accurately known by you, both to understand and to relieve these cases. The internal ring is formed in the fascia transversalis, and transmits the spermatic cord, or, in the female, the round ligament of the uterus, from the abdomen; it is not a fair round aperture, but is prolonged for some way around the cord in the inguinal canal. This ring is situated midway between the anterior superior spinous process of the ilium, and the symphysis pubis, and about half an inch above the level of Poupart's ligament; it is not always *exactly* in this spot, but in the natural state it is never many lines to one side or the other of it. The external abdominal ring lies external and superior to the spinous process of the pubis, and is formed in the tendon of the external oblique muscle; the space between these rings is called the *inguinal channel*, in which the spermatic cord lies. You know the cremaster muscle, coming from the lower border of the internal oblique and transversalis abdominis muscles, accompanies the cord through this channel also lying in front and a little external to it, and you will remember, this muscle and the cord are very loosely attached to each other by reticular cellular membrane. You will see, then, from your knowledge of the anatomy of those parts, the contrivance manifested to protect against the occurrence of hernia here; the gut or omentum, which first pushes through the internal ring meets

\* A pupil of mine, reading one night on hernia, put down his hand to feel the situation of certain anatomical points in the groin, and discovered that he had a pretty large inguinal hernia, of which, until then, he had not the slightest suspicion. I have known an incident of nearly the same kind occur to a medical gentleman in this city.—*Ed. of Lect.*

a resistance to its direct course from the internal oblique and transversalis muscles, the lower borders of which overlap it, particularly the former one; and that the resistance they give to protrusion is strengthened by the aponeurotic-like tendon of the external oblique muscle: the hernia has therefore to make a turn downwards and inwards into the inguinal channel or groove, towards the external ring. At this external ring it meets a new obstruction from the transverse bands which bind the sides or pillars of the ring to each other, and this obstruction may succeed for a long time in preventing the passage of the hernia through it.\*

You can understand, therefore, that an inguinal hernia may exist, although the parts have not protruded through the external ring, and this you must constantly keep in mind when making an examination for this disease; you are not to be satisfied, when there does not appear a swelling at the external ring, but observe whether there be not an elongated and oblique fulness in the space between the two rings, or a little tumour, not well defined perhaps, situated midway between the spine of the ilium and symphysis of the pubis; for recollect a patient may lose his life from his hernia becoming strangulated in the internal ring.

From various circumstances that may arise and changes that may take place, particularly the thickening of the surrounding parts, it is sometimes difficult to distinguish inguinal hernia from other diseases. The spermatic veins are very numerous on the cord, and are subject

\* The anatomy of inguinal hernia presents little difficulty to the student who investigates it with the knife and forceps in his hand, if he does not hurry himself; while to him who reads the descriptions of the same parts by different authors, the difficulties are almost insurmountable, from a want of methodical language, and the ambition of applying new names to things already well supplied. For instance, the line that separates the abdomen from the thigh, is called Poupert's ligament — the ligament of Fallopius or Fallopio — the crural ligament — the femoral ligament — the ilio-pubic ligament — the external inguinal ligament — the crural arch — the inferior border of the external oblique muscle — the femoral arch, &c., &c. Then comes the inextricable confusion in the terms employed to describe the relative positions of parts, which has a more dangerous tendency — for instance, the adjectives *internal* and *external* are applied to the apertures by which herniæ escape from the abdomen, or the rings. Now, that which is called the *internal* ring, is what the scalpel makes in the fascia transversalis, when it is required to *exhibit* a ring, and which is situated sixteen or eighteen lines more external to the median line than that which is called the external ring, or the triangular deficiency in the tendon of the oblique muscle. He who uses this mode of description writes, that the epigastric artery lies to the *internal* side of the *internal* ring, which is a contradiction in terms. The same may be said of calling the curved pillar of what is called the *external* ring, that on which the spermatic cord lies, the *outer* pillar, if considered in connection with the terms employed to the rings themselves. Again, Hesselback and others call the common oblique hernia *external* hernia, although it may have passed *only* through their internal ring, and give the name *internal* hernia to that which has only passed through the external ring, without any connection with the internal ring at all; that is, the *hernia by direct descent*, or the *ventro-inguinal* of others. These few instances are given as a warning to the student against the multitude of similar perplexities he will encounter in *reading*. To my mind, one of the most simple and satisfactory descriptions of the anatomy of hernia, is that of Mr. Colles in his "*Surgical Anatomy*."—*Ed. of Lect.*

to varix, as other veins are. Now, when they become affected with this disease, they form a considerable swelling, and from their situation, and the feel they communicate to the hand, they very closely simulate omental hernia. Like the epiplocele, the tumour of cirsocele, as this varicose condition of the spermatic veins is called, is irregular on its surface; it is inelastic; it yields slowly to the pressure of the hand to return it into the abdomen, and it gives somewhat the sensation to the examiner as if it was increased in size by coughing, &c.: it can be reduced in the horizontal position, and may not reappear until the patient stands up; these points of resemblance between the two diseases may lead to error in judgment; and should a truss be recommended and applied when the case is cirsocele, of course it would do injury instead of service. The best way to distinguish one from the other is that pointed out by Sir A. Cooper; put the patient in the horizontal position, and reduce the tumour, then place your fingers firmly on the external ring and make the man stand up. If it be hernia, it cannot return, in consequence of the pressure you make, but if it be a varicose state of the spermatic veins, the tumefaction will return, and the more readily the stronger the pressure you make. This will never fail to distinguish between the two cases. Inguinal hernia may be confounded with hydrocele of the spermatic cord, in cases where the fluid extends up as high as the external ring, or where it even goes through the ring and into the cavity of the abdomen, as it sometimes does, or only as far as the internal ring. To distinguish these two cases, you push up the fluid a little way into the abdomen, when that is possible, having first made the patient lie down; you then take hold of the spermatic cord between your fingers below the fulness, and hold it so tight that you are certain a piece of gut could not slip down between your fingers, then make the patient rise, and if it be hernia the tumour will not re-appear, but if hydrocele it will, let you do your best to prevent it. I have succeeded in detecting several of these cases, by this mode, not merely in adults but even in children, and to tell whether an infant has hernia or not, is one of the most difficult things in the world. The points of similarity between hernia and this form of hydrocele are very strong; both are generally in front of the spermatic cord; in both the testicle is below the tumour. Now, to distinguish them, you are to hold a lighted candle on one side of the tumour, and to throw your eye upon the other, and that if the case be water the tumour will be transparent, and you can readily detect it. This proceeding was never recommended by a practical man; for the convexity of the tumour alone will give the perfectly deceptive look of transparency, no matter how opaque it really may be, and if this is difficult in the adult, it is ten times more so in the child. You will often require great caution in your diagnosis of these cases, for if, suppose, a man in the army fancies he has rupture, and that you erroneously agree with him, he is considered unfit for service, and your wrong decision may oblige him to give up his commission. There is a honey-comb hydrocele of the cord, where the

water is contained in a number of cells that have a slight communication with each other, just sufficient to allow a little dribbling of fluid from one to the other; this cannot be mistaken for enterocele, but it may for epiplocele, but the same test will answer here as for the other case. An irreducible hernia may be mistaken for hydrocele of the tunica vaginalis testis, but this hydrocele seldom goes up so far as the external ring; sometimes, however, it does go through the external, and as far as the internal ring; you can, in such cases, generally get your finger into the ring, which you could not do if it was hernia; sometimes water accumulates in the bottom of a hernial sac, and if the hernia be irreducible nothing can be more difficult than the detection of the real nature of the case. I have seen three surgeons in Dublin who saw more cases of hydrocele than all the surgeons put together, mistaken in such a case as this, and they actually went about operating for hydrocele. You will understand the difficulties of this by recollecting the ordinary course of an inguinal hernia. When it gets first through the internal abdominal ring, it is covered immediately in front by the transversalis abdominalis muscle, and about a quarter or half an inch lower down by the internal oblique: on descending below the margins of these, it becomes covered by the cremaster muscle. Now, recollect that the vas deferens and spermatic vessels must naturally lie behind the hernia so far, and as it continues to descend to the external ring, or down into the scrotum, it separates the muscle from the rest of the cord in its whole extent; but when it comes to where the cremaster is firmly connected to the tunica vaginalis testis, it is held in a kind of loop, and can descend no lower without carrying the testicle itself down with it, so that in oblique inguinal hernia the testicle can be felt distinctly at the bottom of the tumour; but if the tunica vaginalis is distended with the fluid of hydrocele, which, remember, is an adventitious complication, and not at all depending on the hernia, the feel of the testicle will be very obscure, or you may not be able to discover it at all.

Where a tumour of any kind forms in those situations where herniæ usually appear, and becomes fixed, it may readily be confounded with hernia, and if in a state of acute inflammation, symptoms may present themselves very difficult to be distinguished from those accompanying the strangulated condition of a hernia. There is a small lymphatic gland always, I believe, to be found on the pubic side of the internal abdominal ring, and very close to it, and I have seen a swelling and inflammation of this gland give a great deal of pain, attended with nausea and obstinately constipated bowels; there are other lymphatic glands found here and there along the whole course a hernia would take, that might lead one into error when similarly affected. In femoral hernia the distinction will in many cases be even more difficult, from the smallness of the tumour frequently, and its greater depth from the surface in both.

Swelling of the testicle from gonorrhœa, or a varicose condition of the spermatic veins, *when combined* with hernia, is the most diffi-

cult thing in the world to detect the nature of. To examine if a man has hernia, we bid him stand up, and desire him to cough, we cast an eye, not on the external ring, but on the situation of the internal ring, and if he has a hernia, we will see an oblique tumour in the direction of the canal.\*

As the difficulty of reducing a hernia by the *taxis* depends mainly on the tightness with which it is girt by the edges of the openings through which it has protruded, your first step must be to put your patient into such a position as will relax these parts as much as possible. You know that much of the tension of Poupart's ligament depends on its attachment to the *fascia lata* of the thigh; when the limb is extended this ligament is drawn downwards and made rigid, and to relax it, and through it, the external abdominal ring, you flex the thigh on the pelvis, and turn the knee inwards; you also relax the abdominal muscles by raising the patient's shoulders by pillows, &c.; you then have the parts disposed in the best manner to favour your purpose; you next grasp the hernia with one hand and compress it gently, while with the fingers of the other hand you lay hold of the part immediately below the ring, and endeavour to press a little of it backwards through the ring, and upwards and outwards in the direction of the inguinal channel. If you get up ever so little, you will generally, by perseverance, get up the remainder. If the contents of the hernia be intestine, it generally goes up with a gurgling noise, and the last portion springs from your fingers, as it were, into the abdomen; while, if it is an omental hernia, it goes up slower, without noise, and you have to follow the last bit of it with your finger. Now, after the hernia is reduced, the next thing we have to do is to prevent its return, and this is done by means of a truss, of which I have here specimens of different constructions. Although I think the common truss will in general answer better than any other, you seldom get them properly made in the shops. Besides the comfort the patient enjoys from having his rupture kept up, and besides the danger he otherwise would be liable to from blows and other accidents, and the risk of its one time or other becoming strangulated from any imprudence on the patient's part, or even when he had nothing to accuse himself of, and those would be sufficient reasons of themselves, there is yet another for employing a truss with care and constancy — namely, the hope of eventually

\* This observation obviously is applicable only to *oblique* inguinal hernia, for, if the case be that comparatively rare one, *ventro-inguinal*, there can be no tumefaction in the direction of the inguinal canal; this form of the disease having no connection with the internal abdominal ring, or with the canal, except at its very termination. As elsewhere, Dr. Colles gives the excellent practical advice to apply the pad of a truss over the *internal* ring, instead of where it is more commonly applied, on the external. It is hardly necessary to observe that a case of *direct* inguinal hernia will be an exception to the rule, and so, perhaps, will the old hernia that has caused an approximation of the rings, so far as applying the pad to the midspace between the spine of the ilium and symphysis pubis.—*Ed. of Lect.*

procuring a permanent cure of the disease; and this may be rationally entertained if the complaint be not of long standing. If, by the pressure of the truss, we excite a slight inflammation of the neck of the hernial sac, the sides of it may adhere, the adhesion will grow stronger every day, and finally be sufficient to resist a future descent of the hernia.

Now, I wish to impress on you particularly, that to adopt the surest means for so desirable an end, it will be necessary to apply the pad of the truss over the internal ring; it will be of no use whatever to place it over the external ring, as the old surgeons used to do; it could only limit the extent to which the hernia would have descended, but could not press on the *neck* of the sac which is at the internal ring, and of course will not have the chance of curing the disease; besides the pad, if applied over the external ring, will press on the spine of the pubis, on the spermatic cord if the patient tries to bear the pain, and in either case the pressure will be borne off the parts we wish to act on. I saw a man who lived in the country, and who got a truss made there, with the strongest spring they could manufacture—and it was a strong one indeed—and this he wore for a long time, but he was sometimes obliged to lie down in the field and to loosen it, from the pain it gave him, by pressing on the cord, and on examining this man I found he had no hernia at all, nor never had. You ought to be very particular in your directions to the patient how to put on his truss; unless you do, they are often quite content to get the tumour up out of the scrotum and then apply the truss, but it may, in such a case, press on the gut itself as it lies in the inguinal canal. After he has worn it two or three days make him come to you, and see him put the truss on before you that you may be certain he does it right; if it excoriates him make him wash the part three times a day with cold vinegar and spirits, and apply a bit of shamois leather under the pad. If he is to obtain a perfect cure he must positively wear the truss day and night for twelve months at least. It would be well to make him have two trusses to wear alternately every three or four days; the pads will be more comfortable, and wearing one constantly, I suspect, injures the spring.

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## LECTURE XVIII.

Hernia (*continued*). — Ventro-inguinal — Irreducible hernia — Strangulated hernia — Old herniæ — Hernia strangulated in the inguinal canal.

THERE are trusses invented to enable the patient to regulate the position and degree of pressure himself, but I believe most people prefer the common one. There is one thing you must look well to. You can hardly get the truss-makers to make the spring short enough

for the pad to rest over the internal ring; they are a very self-sufficient class of people, and of course in things of this kind totally ignorant, and so wedded are they to old errors, that they actually will not make the instrument as you desire.\* The common pad is of no use to very fat people; you must have a very large pad for them, and it should come to a point in the centre. Should the truss press on the cord, you can get a groove cut in it for the cord to lie in, although inconvenience of this kind rarely happens, unless there be some morbid affection of it. The irregular application of a truss is very dangerous; I operated on a student of this class, in whom the necessity for the operation arose from his using his truss irregularly.

There is a form of inguinal hernia called *ventro-inguinal*, or *direct hernia*, in which the protruded parts take a different direction from the ordinary oblique hernia, and of course have a different relation with the surrounding structures. We saw that the common case we have been considering, came first through the internal abdominal ring; that it next passed under the fleshy margin of the internal oblique and transversalis muscles; that it coursed along the inguinal canal, and at length generally pushed its way out through the external ring. Now, as it first emerges from the abdomen, it will have the epigastric artery on its pubic side; this artery runs within a very short distance of the inner margin of the internal ring, only separated from it by a small lymphatic gland, and, perhaps, a small vein; the hernia is next pressed on by border of the transversalis muscle, and a little lower down by that of the internal oblique: that in passing those it becomes connected with the cremaster muscle, which lies on its anterior and superior part, the hernia in its progress separating that muscle from the spermatic cord, which latter lies behind and below it; that it rests then on Gimbernat's ligament, which conducts it to its termination. Now, if you recur to your recollection of the anatomy of these parts, you know that there is no passage from the external ring directly backwards into the abdomen; that your finger meets a resistance in that direction; and that, carefully examined, this resistance is found to be caused by the conjoined tendons of the internal oblique and transversalis muscles going to be inserted into the os pubis, and by the fascia transversalis which is inseparably connected with this common tendon. You find also be-

\* There was lately laid before the Council of the Surgical Society of Ireland for their opinion, a truss invented by Surgeon L'Estrange of this city, specially designed to press on the internal ring, and the whole inguinal channel. It consists of two springs, independent of each other in their action, and pressing in contrary directions. We were unanimous in our opinion that its construction was well adapted to fulfil the intentions of the inventor, in any position of the body, which the common trusses hardly ever do. Mr. L'Estrange did me the favour, on a subsequent occasion, to show me a case where his truss had been worn several months, and the person, who took a good deal of exercise on horseback, had no occasion to wear a thigh-strap or other contrivance to prevent displacement, and so well had it performed, that I think a cure had been effected. For description and figure of Mr. L'Estrange's instrument, see Medical Press for February 21, 1844.—*Ed. of Lect.*

tween the inner pillar of the ring and the conjoined tendon, a fibrous structure of a triangular shape, having one of its sides inserted into the *linea ilio putinea*, another side apparently lost in the external oblique muscle of the opposite side, and the third, which is free, having a well-defined semilunar edge looking upwards and outwards. This *triangular ligament* stretches itself more or less completely across the space behind the external abdominal ring. These parts, except the last, are far from being strong — in fact, the back of the external ring is the weakest point, in reference to hernia, in the whole inguinal region, and accordingly we sometimes find the intestine has burst through the tendon and fascia, and comes forward at once through the external ring. Now, you will readily conceive the difference of its relation from that of the other form. It will have the epigastric artery of course on its iliac side, and at some distance from it; it will have the cremaster muscle and spermatic cord most probably behind it, for it glides over and in front of these parts in its passage out. We shall presently see what importance is attached to these differences, when we come to the operation for strangulated hernia. Now, in cases of long standing, and where the protrusion is large, a change takes place in the position of the oblique hernia that gives it very much the general characters of this direct kind — the internal ring is gradually drawn down by the weight of the contents of the sac, until it is nearly opposite the external ring, and the groove or channel I before mentioned as containing the cord, which, in the natural state, or in the recent small hernia, is an inch and a half long, has by this means been reduced to almost nothing; yet the epigastric artery and cremaster muscle will have very little altered their relative positions to the hernia itself. Of course I need hardly repeat that the proper hernial sac in both these forms is composed of that part of the parietal peritoneum which stood in the way of their protrusion at the groin, and which they had carried forward with them.

A hernia is said to be irreducible when all the efforts of the surgeon are insufficient to restore the bowels or omentum to their proper situation. Although not strangulated, yet a man having such a hernia is far from being free from danger. It is liable to serious injury from a degree of external violence that, under other circumstances, would not obtain a moment's notice. It is liable to become inflamed, and to obstruction.

What is it that makes a hernia irreducible? Sometimes it is a slight adhesion of the neck of the sac, arising from a slow chronic inflammation, and so slight in degree as not to be felt by the patient; such a hernia may sometimes cause pains like colic, or an uneasy feel in the testicle with which it is in contact. Sometimes a hernia is rendered irreducible by a band formed of coagulable lymph embracing the neck of the sac, and this is likewise caused by the same kind of chronic inflammation. When a hernia is first protruded, the sac is quite moveable, and can be returned with its contents into the abdomen, but when the disease has existed a month, the sac becomes

adherent, and will never go up again. A hernia may sometimes become irreducible from its increased bulk, arising from an accumulation of fat in the mesentery, and also from a change in its structure. For two or three months after the occurrence of an omental hernia, the omentum is not much altered, but after that period it becomes, as I have said, a mass of fat, loses entirely its natural appearance, and gets such an increase of volume that it cannot afterwards be reduced. The omentum or intestine may also have formed adhesions to the irreducible sac in which they are contained, and so become irreducible themselves; and this adhesion between the sac and its contents will sometimes be found so extensive and firm, that you are unable to separate them with safety, even when they are exposed in the operation.

Sometimes a patient having a hernia for a long time without any trouble, feels, after making some exertion, a new portion come down, and immediately it becomes irreducible; if we try to bring that hernia to its former state what we should do is this—we must make the patient lie in bed, not for three or four hours, but for eight or ten days successively, we give him one or two smart doses of purgative medicine, but not more, for if you continue brisk purging you will cause a disengagement of air that will increase the bulk of the hernia, and render its reduction more difficult; keep him moderately open, and on diet not likely to produce flatulency; should this not succeed, you must continue the purges still longer, and of course the frequent employment of the taxis. Great cold applied to the scrotum, by causing its gradual and firm contraction, will sometimes effect the reduction of the hernia. Cold also reduces the volume of the hernia, and by this means assists your efforts. If the hernia has been of long standing, and the ring wide, you may use a considerable force in your trial of the taxis, or manual return of the hernia. Those about you may cry out that you will burst the intestine with the force you exert, but you need not fear. The case is this—the sac has become so thickened, and takes off the pressure from its contents so much, that you really must use a considerable degree of force before you can act on the hernia at all. But you cannot use this force in all cases. In a case which has existed, suppose, only a month, you must use less force, because the pressure is more directly applied to, and acts more immediately on, the contents of the sac. In the old case, should you not succeed in returning the hernia by the means I have mentioned, you should make use of an exceedingly good contrivance invented by Sir A. Cooper; it is a laced suspensory bandage, so contrived that you are able every day to tighten it a little, and the gradually increased pressure, and your power to make that pressure follow, as it were, the diminution of the tumour will often crown your efforts with success. Now, an old rupture of *very* large size will not admit of any means being employed to reduce it; the abdomen has become accustomed to the diminished quantity of its contents, and even if you should succeed in returning a large volume of intestine and omentum, you would speedily have, in many in-

stances, to allow them again to descend, on account of the disturbance of the system from nausea, vomiting, colic, &c., — and even where the laced bag might be properly tried, you will have to guard against tightening it too quickly, lest these consequences should be produced. When you give up all hopes of returning one of these large herniæ, all you have to do is to advise your patient to avoid flatulent food, particularly young vegetables. It is remarkable that numbers of herniæ became strangulated at the season of the year when the young vegetables come in first: this I have remarked for years. You must not suppose that some extraordinary exertion on the part of the patient is necessary to make an old hernia become strangulated — not at all. The young student I before mentioned, on whom I operated, had his hernia for some time without experiencing any inconvenience from it; and while he was sitting quietly at a card-table, he felt it uneasy; he put down his hand and felt it enlarged; it had become strangulated.

When a hernia becomes strangulated, the patient feels a little sickish; he takes, perhaps, some medicine, but is not relieved by it, but after a little time there comes an uneasiness in the tumour, and this quickly becomes very painful. On examination you will find the contents of the sac inflamed, and yet the integuments, over this inflamed hernia, do not often become discoloured or inflamed: sometimes, however, they do; the patient's stomach next gets from nausea to vomiting; there is very great thirst; the vomiting becomes more frequent; the abdomen becomes full and tense; the pulse from the natural state becomes small, hard, reduced, and rather quick; the patient's eyelids overhang his eyes; he tosses his legs about; he at length vomits *without any effort*, without raising his head sometimes, he just opens his mouth, and out it comes: his extremities become cold; a cold sweat breaks out on his face; he has a stool, and gets perfect relief from all his distress: he says he feels quite well, quite easy, but you know he is not well, for mortification has taken place, and in a few hours he expires. Now, a patient sometimes dies of strangulated hernia without gangrene at all taking place; he dies of peritoneal inflammation.

The more recent a hernia is, the more rapidly does it become fatal; but an old case *where a truss has been irregularly applied*, is as dangerous and as rapidly fatal as a case which appeared but the morning before. The periods at which strangulated herniæ become fatal are different under different circumstances: sometimes in twenty-four hours, and sometimes not for five or six days. I cannot charge my memory with having ever seen a case of inguinal hernia recover when gangrene had taken place, yet it is very remarkable that patients with strangulated *femoral* hernia that had mortified, will often recover, although the parts which constrict the intestine are much more rigid and unyielding, have sharper edges, and form a smaller aperture in the latter than in the former.

There are some means by the employment of which you will be able, occasionally, to relieve a strangulated hernia without the ope-

ration, and they should in most cases be tried before having recourse to the knife. You should begin in these cases by bleeding the patient, not merely for the purpose of making him faint, although that is of the first importance, but likewise to reduce or moderate inflammation. I never saw a recent strangulated hernia where bleeding was not necessary. Cases, apparently very similar, will end differently, so that if your patient, whom you have bled in the first instance, should afterwards die, you are not to think that it was the bleeding which killed him: you must never judge from one or two of such cases. My advice to you is, never to let a case of strangulated hernia come across you without having recourse to bleeding, and this should be carried to fainting: take blood in a full stream, and from an orifice so large that you would almost be afraid to make such a one in a vein. When you make your patient faint you will often be able to return the hernia. The warm bath is advised, and is sometimes useful: but as the only intention in using it is to make the patient faint, you must make it as hot as he can bear it comfortably, but no hotter. Purgatives should never be given in recent strangulated hernia by the mouth; purgative clysters may be of service, by relieving the fulness of the large intestines, and relieving the tension, but you need not persevere in them, for, after the first or second injection, they cease to give relief. Tobacco injections are the very best things after bleeding. Formerly the smoke of tobacco was used for this purpose, but the objections to it were—the difficulty there often was to get the machine to work well, and the distension it caused was very distressing; the infusion is therefore now substituted: you get a drachm of tobacco leaves and infuse it for ten or fifteen minutes in a pint of boiling water; when cool, inject one half, and if in a quarter of an hour you observe no effect from it on the system, inject the other: the effect you look for is fainting, depression, cold perspiration, &c. I have seen many cases where the surgeon persevered for a considerable time to try to put up the hernia by the taxis, without success, and which went up of its own accord after the tobacco enema. Warm applications are objected to on the ground of their increasing the volume of the hernia. Now, I believe warm applications do very little good or harm; but as to their rarifying the air in the protruded bowel, I believe that neither warm or cold applications can have any effect whatever on the contained air. Take care how you apply too great a degree of cold, or for too long a time to the scrotum when it is inflamed, and its colour purplish, or when the bowels are down two or three days, for the vitality of the parts is reduced, and you might bring on gangrene. I have heard that dashing a bucket of cold water over the patient, without giving him notice of your intention, has succeeded in getting up a strangulated hernia. Petit tells a story that he had such a case, where he saw nothing that could be done except to operate, and pressed the boy's friends to let him perform it, but the patient's mother would not consent, and while they were arguing, she got a tub of cold water, dashed it over the boy, and the hernia went up of itself. I have

seen taking up the patient by the heels, and holding him by them for a short time, succeed in getting up a hernia when nothing else would; but it is a practice by which, if you fail, you will be likely to get into disgrace.

If every thing you try fails in reducing the strangulated hernia, what are the symptoms that would warn you not to delay the operation—at what period should you operate? Why, some will tell you that you may wait, that there are certain symptoms which will distinctly point out when you must have recourse to the knife, and until they show themselves, you may employ yourself in trying other things; but authors differ about what these certain symptoms are. One will say—“Wait until the patient gets hiccough;” but he may die, and I have seen patients die of strangulated hernia without ever having had hiccough at all. Others say—“Wait until you discover symptoms of peritoneal inflammation, until the belly gets tender, &c. :” but just think of the hazard you put your patient in, by waiting until you get decided symptoms of peritonitis developed in your patient: in fact, you have no symptoms to show precisely when you should or should not perform the operation for strangulated hernia; you will acquire, by habit, a certain information through the feel of a hernia, by which you know whether you have any chance of getting up the hernia or not, by which you can almost always say with certainty whether the taxis will at all succeed or not. One thing is certain, the result of the French rule of operating within twenty-four hours after its occurrence, is infinitely more successful than ours who wait longer: if the operation is necessary, the sooner it is done the better.

I mentioned that the course of a hernia when strangulated is very variable: one half of those cases only take as many hours to run their course, as the other half would days, before mischief occurs. How is this to be accounted for? Some say—“If a piece of omentum be down with the gut, it will, as it were, cushion off the sharp constriction on it, and there will be less urgency in the symptoms.” Sir C. Bell says the reason one case will run a slower course than another is, that where there is no *faeces* in the bowel, it will secrete a superabundance of mucus, the distension of which will cause all the uneasy symptoms; and he, out of this supposition, draws a distinction between strangulation and incarceration: but a hernia will be strangulated, and be subject to all the consequences of that state without any increase whatever in its size, and we really do not know why this is so. I think it is better to consider all those as cases of strangulation, as Bell does not give us any symptoms to enable us to distinguish between strangulation and incarceration, to guide our practice: I think he wrote on this subject from observation on one case only. I said there was a particular feel in the tumour, by which you could tell whether the taxis would succeed at any period or not: it is hard to convey an idea of this feel: you will feel many herniæ before you learn it; it is a certain degree of unyieldingness and incompressibility conveyed to the hand. Where there is tenderness to the touch you should not use force in applying the taxis. I have

seen an instance where a surgeon used force in the reduction of an inflamed hernia, and he reduced the tumour sure enough, but on examination after death, it was found that he had ruptured the bowels.

We shall not consider a hernia of long standing. If these are strangulated they become in all respects like recent ones, as far as ultimate consequences are concerned; but there are many points of difference between them in other respects. A very recent hernia, if promptly returned, may, as I said before, be radically cured, but an old hernia never can, because, among other reasons, the parts through which they have protruded, have become so widened, and the passage from the abdomen so free and direct, that there is no chance whatever of restoring them to their natural capacity, or of procuring such an adhesion of the neck of the sac as would prevent any future descent. For this reason, too, it is that the symptoms following strangulation of old herniæ never follow each other so rapidly as they generally do in a recent small hernia; they are slower in their progress.

If you procure a stool in a recent hernia, it is just what had been in the rectum or neighbouring part of the colon; but in the old case you may be able to procure stools from a more distant source. In the recent case you have seldom much time to spare for the trial of the taxis, or the employment of other measures before the ultimate one of operation: in the old case you may wait even a week in many instances, and during that time throw up repeated enemata, and practise the taxis; you may also administer purgative medicines by the mouth; although the patient is vomiting, and has not passed a regular stool for two or three days, a calomel purge will often bring away a stool, and where it does so, the hernia will be likely to go up. In giving purgatives by the mouth in those cases of old herniæ which have become strangulated, you should make choice of those not of a very irritating description; calomel and aloes, or calomel alone, or sulphate of magnesia, will answer very well; if the pill of calomel and aloes or calomel alone, does not lie well on the stomach, you might combine a little opium with it. The reason that purgatives are proper, and often do service in those cases of old herniæ is, that from the large size and long existence of the hernia, and consequent openness of the rings, the bowels have room to perform the peristaltic motion, which would be next to impossible in the small recent case. Although the abdomen may become swollen, it is not so painful as it is in the recent case. Your application of the taxis will be very different in the old hernia—in fact, here you may use as much force as you like; I have risen, after reducing one of them, as tired as if I had made the most violent exertions. You are perfectly safe in any degree of force you employ with the hand in reducing one of these old cases, and if you succeed in getting up ever so small a bit, you relieve the urgent symptoms. It is not at all necessary to reduce the *whole* of the protruded parts in an old hernia; it is quite enough if you reduce the portion that last came down, what would, in your estimation, amount to perhaps an inch of intestine. In these old herniæ the remarkable change takes place in the position of the rings

that I before mentioned ; you will, therefore, in reducing such a one, push the contents of the sac directly backwards, instead of upwards and outwards, as in the recent cases. An omental hernia, when strangulated, will produce as much constipation as if a piece of intestine were included in the stricture, and, when we come to examine the case, we cannot say whether a piece of gut be there or not; a very small bit may be recently pushed down into the sac of an old omental hernia, and neither from the size or thickness of the parts, or by any other means, can we discover it; you must not therefore rely much on the previous information you may have gained in attendance on the case.

There is a kind of hernia, the diagnosis of which is very difficult — it is when the bowels have passed through the internal ring, and lie in the inguinal canal, without having quite reached the external ring, although it has approached it; if one of the patient's testicles should never have descended into the scrotum, but remains in the inguinal canal, and that this testicle gets inflamed from any injury, it gives precisely the symptoms of strangulated hernia; I would defy any one to tell the difference between them. Now, if you proceed to operate in this case, under the impression that it is hernia, you will perform an operation that will be very likely to be fatal to the patient; merely exposing the testicle in this situation is almost always fatal. I recollect I once went to perform an operation of this kind, and did perform it, without ever thinking whether the man had a scrotum at all or not; I found the symptoms arose from an inflamed testicle in the canal; the man died, and the case left an impression on my mind that I will not readily forget. Inflammation of the testicle here is infinitely more violent than it ever is in the scrotum, and when it is exposed, the patient dies of peritoneal inflammation. When a hernia is strangulated in the inguinal canal, the symptoms are very rapid, and it is very difficult to apply the taxis to it with effect, because you cannot get your fingers round it.

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## LECTURE XIX.

Hernia (*continued*).—Hernia congenita—Hernia infantilis—Operation for inguinal hernia—Symptoms after operation.

THERE is one species of hernia which I omitted to mention — namely, *congenital hernia*. For some time after the testicle has descended from the abdomen of the child in utero into the scrotum, there is, you are aware, a free communication between the cavity of the tunica vaginalis and that of the belly. Should a portion of intestine insinuate itself down into the peritoneal canal that connects these cavities to each other, before the communication is closed up, it will prevent the closure, and the infant will have this congenital hernia. In this case the hernia is in contact with the naked testicle,

and lies in the tunica vaginalis testis, which forms its sac ; its relation to the cord and cremaster muscle does not differ from that of the common inguinal hernia, except that it is separated from the muscle by the tunica vaginalis of the cord and testicle. As in this form of the disease there is nothing to prevent the gut from descending as low as the body of the testicle, or even a little below it, you will not, as in the ordinary case, feel the gland distinctly below the hernia, nor indeed is it in this form to be very distinctly felt at all. I never was at the pains to observe the proportion of cases, where this communication between the bag of the tunica vaginalis and the general cavity of the peritoneum remained open at birth, but I think it is open at least on one side in every infant when born. We often discover adhesions formed between the testicle and a neighbouring intestine while these parts lie in the abdomen, and in such an instance as this, we cannot prevent the occurrence of hernia, nor prevent its continuance. This kind of hernia may occur in the adult.

How are we to know whether an infant has or has not a congenital hernia ? It is very curious, but true, that the surgeon often takes the word of an old nurse-tender, or other ignorant person, that the child has a rupture, and applies his treatment for it, when there exists, perhaps, only a hydrocele extending up to, or through the ring. A great proportion of cases in infants which appear to be hernia, are really only a collection of fluid in the tunica vaginalis of the testicle and cord. From the restlessness of the child, and other circumstances connected with its age, it is sometimes difficult to decide on the presence of hernia in them. The way I would propose to examine it is this : place the infant in the recumbent position, and push the tumour up into the abdomen (if it is a hydrocele you can always do this in an infant) — then take hold of the spermatic cord in your fingers, and hold it just so tight as to prevent the hernia, if there be one, from descending — then place the child erect, and in a few minutes, if the case was hydrocele, the tumour will reappear ; of course if it be hernia it will not. I have never known this test fail in showing the true nature of the case. Now, suppose the case to have been a hernia, and that in returning it you find you have likewise returned the testicle back into the abdomen with it — that they are adherent, and that wherever one is, there must be the other, what are you to do ? Are you to keep the testicle in the abdomen, or subject the child to the danger of leaving the hernia unreduced ? Why, the best thing you can do is to explain the whole matter to the child's parents or friends, and if they permit it, by all means keep up the testicle, although the future man may feel himself uncomfortable at finding that he has but one testicle apparent. How are you afterwards to keep up the hernia ? You will find it difficult to make those who have the care of the child persevere in keeping on a truss properly. The child will wet it, the leather in two or three days will become hard, and the spring of the truss rusted, and thus will it become perfectly useless ; what I would advise you is,

to get a cover for it of oiled silk, that will slip easily over it, and by having two or three of them they can be changed occasionally, and all the inconveniences be remedied; linen bandages or covers are obviously useless. With all your care, your great difficulty will be to get the child's nurse to follow your directions strictly and perseveringly; they think everything is wrong if the child cries.

Mr. Hey describes another form of the inguinal hernia which differs from that I have just mentioned, although it also, in a great measure, is especially connected with infancy. It sometimes happens that the communication between the abdomen and the tunica vaginalis, is closed up in the ordinary way at the internal abdominal ring, but the adhesion does not extend farther, and the bag of the tunica vaginalis testis may be said to extend from the scrotum up through the external ring, and inguinal canal, as far as the cicatrix at the internal ring. Now, a hernia may occur in this condition of the parts, — will carry before it the cicatrix, and consequently a peritoneal sac, and take its course in the tunica vaginalis of the cord, down into that of the testicle, of which it is a continuation. Here the hernia may be said to have two sacs — one, the process of peritoneum, similar to the sac of a common hernia, and which it had pushed before it, and the other, the tunica vaginalis itself, which contains the hernia, and its true sac. This form of rupture is called *hernia infantilis* in contra-distinction to the *hernia congenita*, which has no proper sac, but is contained in the tunica vaginalis, and lies in contact with the testicle. It is a very rare form of hernia, and cannot, I think, be distinguished from *hernia congenita* during life. Its ordinary treatment will be the same, but if an operation be required, you must not forget, that after opening the tunica vaginalis, the hernia is not exposed, for you have still to open a proper hernial sac which is contained in it.

The operation for inguinal hernia has for its object the division of the constricting part or parts, either to enable us to return the protruded parts, or if that be impossible or imprudent, to remove the obstruction to the exercise of the functions of the bowel, or should the case be omental, to take off such constriction as may endanger its vitality, or the still greater danger of its inflammation extending to the peritoneal surface within the abdomen. Our first consideration, then, is — in what place, or by what parts, may the strangulation be? We are told it may be strangulated at the external abdominal ring, and by the structures composing the ring: it may be in the inguinal canal, and caused there by the lower margins of the external oblique and transversalis muscles, which cross it in that passage; it may be in the internal ring, and caused by this opening in the fascia transversalis; or it may be caused by the neck of the hernial sac in any of those situations. It may also be in the cellular substance below the rings. I believe this to be a very common seat of the stricture; indeed, in most cases, I think it is in this last situation. Now, in operating for a *recent* inguinal hernia, you will generally have little difficulty in distinguishing the different layers of parts

through which you have to cut, and you must divide them all in the same line. Having had the groin and pubes shaved, and the patient placed in a convenient position on a table covered with blankets, you commence your cutaneous incision about an inch above the tumour. Some advise you to get an assistant to pinch up the integuments, but I think the surgeon who could not trust himself to divide the skin without this contrivance, had better not attempt to operate for hernia at all. You take the hernial tumour in your left hand, and make the skin tense in front. After making your incision down to the bottom of the tumour, you come down on the superficial fascia. This membrane will not always present the same appearance on exposure. Sometimes it will be as thin as the arachnoid membrane; at other times, it will appear remarkably strong and firm. This structure you either divide in the same way as you did the integuments, with a light hand, or you pinch up a bit between your finger and thumb, make a slight cut in it with the blade of the knife held in a horizontal position, and slit it upwards and downwards on a director to the extent of your first incision. In this stage you may spring a small artery called the external pudic: it rarely, when wounded, requires a ligature; if it bleeds smartly get an assistant to compress it, at least for the present, or let him take it in a forceps and give its cut end two or three twists, and it will give no more trouble. I merely mention the matter that you may be prepared for it. The next thing you will have to cut is the prolongation of the inter-columnar fascia, and then you come down on the cremaster muscle; this is easily enough distinguished by its fibrous appearance; it sometimes, in old herniæ, attains a great thickness and strength; its colour is generally yellowish, or with a very pale tinge of red. Beneath the cremaster, and between it and the sac, is usually found some loose cellular membrane connecting these parts to each other; it is what may be called the fascia propria, a membrane of which I shall have to speak more particularly in connection with crural hernia.

As you are dividing the different layers of parts you come down on, take care that your assistant does not pull any of them out of the line of your first incision — that he does not disturb their relative positions. Sometimes you will find all the parts, when you are operating for hernia, as distinct as you would find them in the dissecting-room, but sometimes you will find the most confused masses of parts, in which there is no distinction whatever between them to be observed, and this even in very recent cases. You will see some surgeons cutting through the different layers of cellular substance on a director, but this is really an useless caution, and takes up a great deal of time: just keep your eye on one line, and cut through them lightly, as you cut through the skin. When you come to what seems to you to be the sac, cut through it with a very light hand, or if you distrust yourself, just pinch it up in the forceps, or between your finger and thumb, taking care that no intestine is included, and cut it horizontally: you then introduce a director, and

cut the sac freely upwards. In hernia, and particularly in femoral hernia, you are not unlikely to mistake the sac for the hernia itself, and acting on such a mistake may be a matter of very great consequence to the patient; for if it be the sac, and you think it is the hernia, when you find it adherent above at its neck, you will occupy a great deal of time in separating these adhesions, and considerably increase the danger of peritoneal inflammation. Now, how are you to know whether it is the sac you see, or its contents? You sometimes cannot avoid the mistake without very great attention, for the surface of the sac is now and then found as smooth as that of the intestines themselves. There is one way to distinguish them in which you will never fail: just pass your finger up along the exposed part towards the stricture, and when you get there, if it is the hernia, you will be able to feel the margin of the ring or the stricture. I do not mean to say that you will be able to introduce your finger between the hernia and this constricting ring, but you will be able to feel it accurately, whereas if it be the sac that has conducted your finger up, when you have arrived at the stricture, your finger will be borne quite away from its margin, in consequence of its adhesion to the sac. Another method of distinguishing between them also, and one on which you may entirely depend, is to pinch up a little bit in your finger and thumb, and if it be the sac you will be able distinctly to feel the intestine within slipping under your fingers. Some advise you to open the sac at its lowest part, because, say they, there is a fluid between the sac and its contents, this will gravitate to the bottom, and by bearing the gut off from the side of the sac, will make the opening of the latter safer; but sometimes there is no fluid at all in the sac. The best place to open it is about its middle, and on its anterior surface. There is this objection to opening the sac too low, even when fluid can be perceived there, that the constituents of the spermatic cord are sometimes separated by the hernia in its descent, in which case the artery takes an oblique course on the sac, and at the lower part lies rather in front of it, so that an incision carried to the bottom of the sac in front, might wound this spermatic artery before you would be aware, and more than probably interfere materially with the functions of the gland thereafter. There is another reason for not dividing the sac too low, and it is this; we have no way to know whether the hernia may not have been congenital, and if it should happen to be so, by carrying the incision low down, you would expose the tunica albuginea of the testicle which will have to form an adhesion with the wound, and be itself covered with a new cuticle, and this state of affairs will afterwards be of great inconvenience, and a cause of great uneasiness to the patient.

When you have made the small opening into about the middle part of the sac, introduce a director, and divide it down to near the bottom first, then change the position of the director, and divide the sac freely upwards. You next introduce your finger and feel for the situation of the stricture, and when you have satisfied yourself on

this point, the next thing is to relieve the parts on which it presses, by making a division of it, and only to the extent necessary to return the hernia into the abdomen; the stricture is so tight that you are not to hope to be able to get your finger between it and the intestine, in the majority of instances, but you can always insinuate the end of your nail between them, and that will be sufficient. You then introduce Cooper's knife, which is the best for the purpose, with the flat of the blade towards your finger by which you conduct it up to the stricture; you pass its probed end between your nail and the constriction, and just turn up its edge, and raising the handle a little you have cut enough; you feel the parts fly asunder on giving them the least cut possible, and on removing your finger and the instrument, will be able to put up the hernia; you will take care not to let the knife off your nail until you withdraw it. In all cases the division of the stricture should be, as Sir A. Cooper recommends, made directly upwards, and for this reason: — In the form of inguinal hernia called *ventro-inguinal*, or direct hernia, which differs from the common oblique hernia in this, that the epigastric artery lies internal to the oblique hernia, and external to the direct hernia, and if the case on which you are operating be an old hernia, you may not be able clearly to ascertain, as I before explained, whether it be oblique or direct. If you are satisfied it is an oblique hernia you could divide the stricture outwards with perfect safety, whereas if you were to cut outwards in a ventro-inguinal case you would divide the epigastric artery. You are not therefore to cut upwards and outwards, as some advise, but directly upwards where you can do no harm, no matter what kind of hernia it is.

You are told by some, that to prevent, as much as possible, the danger of peritoneal inflammation, or at least to lessen that danger, that you should not open the sac of the hernia at all, but divide the stricture external to it; but if you could break up the adhesions between the neck of the sac and the part which constricts it, your efforts to do so would do more violence to the peritoneum than if you opened the sac freely at once. Now, in your efforts to separate the sac from the constricting ring, or to get your knife between the two, you lose so much of control over the instrument, that on the resistance suddenly giving way, it might be plunged into the hernia itself, or somewhere else that would cause irreparable mischief. Besides, if you leave the sac unopened, you cannot of course tell in what state its contents may be, and your merely dividing the stricture might, in some cases, be of no use whatever. Others, as Sir A. Cooper, open the sac, but tell you not to open it higher than within an inch of the ring, and to divide the stricture external to its cavity; but besides the difficulty in doing this, it should not be forgotten, that the neck of the sac itself may strangulate the bowel, and that in such a case, unless it be divided, you might much better have let the patient die quietly without putting him to so much useless pain.

We are not immediately to return the bowel after the stricture is divided, and particularly if it had been a close stricture, for this

reason — that, although the lower part of the intestine seems perfectly sound, and is so, yet the part that had been embraced immediately by the stricture may not be sound — you may find it in a state of high inflammation, or gangrenous, or even perforated. Therefore draw down the bowel, and examine this part well before attempting reduction. When you see everything is right, you are to hold the hernia in the palm of your hand, or get an assistant to hold it : — you are to push up a portion of the bowel with your finger and thumb, and when you get it fairly into the abdomen, apply the fingers of your other hand to keep it there until you catch hold of another bit to push up — you have little idea how a want of this precaution will sometimes embarrass you. I have seen a surgeon, after half an hour's labour, have more intestine down than there was at the beginning ; if you do not support every bit you get up, a much larger piece will slip down again. Adhesion between the gut and the sac is a *very* rare occurrence in hernia, and the notion that such adhesions are often found may lead to a great deal of mischief. If, however, there be a few bands confining the hernia, you may just cut them across, taking care not to go too near the bowel, for everything else must be sacrificed to it. But are we always to divide these adhesions? No; it is an extremely dangerous thing if they be very close or extensive; if there be such, leave the intestines where you find them, close up the wound, and what will be the consequence? Why, that day after day the tumour will be getting less, the peritoneum, as Scarpa has well explained, will contract, and at length the tumour will disappear altogether, and the hernia will have retired into the abdomen. When the case is an entero-epiplocele, it has been made a question, whether we should return the bowel or the omentum first, after liberating the stricture? I think this a matter of very little consequence; if there should be a globe of omentum with a small neck, I think it would not be well to push this large mass of omentum up beside the bowel, and would much prefer returning the intestine first. The piece of protruded intestine may be in such a condition as to preclude you returning it up into the abdomen — it may perhaps be mortified. How are you to know whether an intestine be gangrenous — what is the appearance of a piece of gut in that state? It has often just the appearance of a wet shamois leather glove; it is soft, or covered with small black spots no bigger than the end of a probe. Now, in this last state you may return the hernia into the abdomen, for if the patient survive the inflammation, adhesions will form between the diseased bowel and the neighbouring ones, and the canal remain perfect. Suppose, however, that the bowel be so far gangrenous that you cannot return it, all you have to do then is to divide the stricture, and leave the rest to nature. Do not attempt, as some advise, to cut off the gangrened part and sew up the part of the intestine neatly from which you removed it; it will never succeed. Stitching an inflamed intestine is a dangerous practice, and cannot turn out well. Do not mistake simple congestion of the part for a more serious condition; you will often,

on exposing it, see the intestine as purple as a plum or darker, but this is only a consequence of the constriction to which it had been subjected, and will not signify.

There is another serious error you might be guilty of — if, on opening the sac, nothing presents itself to your view but a mass of omentum, and if you carelessly examine it, and then return it, you may enclose in it a bit of intestine not so large as the top of your finger, and this may continue to be tightly girt by the omentum after it has been returned into the abdomen, and the patient may die of the strangulation, or of peritoneal inflammation; spread out the omentum therefore freely, and examine its folds very closely, particularly at the place where it had been constricted. Do not forget that omentum, when strangulated, may produce every one of the symptoms, and bring the patient into as much danger, perhaps, as a strangulated bowel itself could do.

When you have removed the stricture, and returned the intestine, draw the lips of the wound in the skin together, put a couple of stitches of the interrupted suture in it, and put the patient to bed. After a few hours he may have a stool, but if not, administer a purgative glyster, the hiccough will stop, and the stomach get tranquil. Sometimes, however, he does not have a stool, nor do the symptoms cease. *Treat this case as one of peritoneal inflammation.* Suppose the belly is become small, and the pain on pressure is entirely gone, but the stomach is still irritable — what are you to do? Why, I have in such a case bled — bled on — without doing the least service, but the administering of an opiate has set everything to rights directly. When the omentum is gangrenous it has a peculiar crispy feel, and a dirty white colour; do not return this gangrened piece of omentum; if you do the consequence will be just what happened to a patient of mine — she was an old woman on whom I operated by candle-light, and I reduced what I thought was a sound omentum, but things were not doing well, and in two or three days a great gush of matter came from the wound, and in a few days more the piece of bad omentum came away, and the patient recovered in despite of my bad surgery.

Sometimes, in the case where intestine and omentum are down together, the omentum will form, as I said, a girth round the bowel, and it had been overlooked, if after a time you should not have relieved your patient by the operation, and that the continuance of the symptoms cannot be attributed to inflammation, you are justified in cutting out the sutures, introducing your finger through the wound into the abdomen, searching for the strictured bowel and disengaging it. If the stricture in inguinal hernia be in the internal ring, you will find Cooper's hernia knife particularly useful, as it only cuts just what you require.

You should not be too sanguine of the success of your operation, under the most apparently favourable circumstance. There is a remarkable fact connected with their termination which I have witnessed; it is this — you have operated, and relieved the stricture,

and shortly after the patient has one or two stools, his stomach gets easy, and he appears to be going on very well, yet this man in a little time falls back, he gets worse, and will sink rapidly on the second or third day, and yet there is no inflammation whatever — in fact, he dies of perfect inanition. Sometimes there will come on a severe diarrhœa a short time after the operation, accompanied with fever, and without you attend to it carefully the case may end badly; it is inflammation of the mucous membrane of the bowels, caused by the stricture a part of it had undergone while the hernia had been strangulated, and you are to treat the case as one of ordinary enteritis. Hernia of the cœcum is peculiar in some things. You know that as this portion of the intestinal canal lies in the right iliac fossa it is generally but partially covered by peritoneum, and the consequence is that when it is the subject of hernia it may either have a partial hernial sac, or none at all. In the former of these cases the sac does not quite encircle the hernia, and of course the stricture can never be, under such circumstances, in the neck of the hernial sac, as in other cases, and if you can discover this during the operation you need not open the peritoneal covering. By leaving it uninjured you very much diminish the chances of peritoneal inflammation. It is astonishing the extent to which the viscera of the abdomen have been found displaced in hernia. The liver, spleen, kidneys, have been found protruded partly in hernial sacs; even the bladder and ovaries may be found protruded in the groin.\*

Before quitting the subject of inguinal hernia, let me again recal your attention to one or two points. Remember that the constituents of the spermatic cord have not constantly the same relation to oblique hernia — that its vessels may lie on the outside or in front of the sac, although they are generally behind it, out of your way, and that this you will not become distinctly acquainted with, until they are exposed during the operation, so that you will not fail to make a careful examination before you open the sac, lest mischief should be caused through inattention. You will also recollect that the sac of the ventro-inguinal hernia is not generally covered in front by the cremaster muscle, but that sometimes the fibres of this muscle do cover the sac in front, so that when you find the muscle in front, you are not to be too confident that the hernia is an oblique one. While you bring your anatomical recollection to bear on the number of parts that your knife will have to divide in operating for inguinal hernia, you must not forget that the subject in the dissecting-room only presented you with distinct, healthy, and undisturbed parts, but that in strangulated hernia those same parts may have been so consolidated, and their natural relations so altered that you cannot, without risk, proceed *solely* on your previous knowledge of their anatomy. You will likewise be careful in watching any symptom that might occur for some days *after* the operation, and not consider

\* Every viscus, but the duodenum and pancreas, has from time to time been found in hernia.—*Ed. of Lect.*

that you have done everything necessary when you have stitched the wound you made, for quite as important matters may still remain to be done by you.

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## LECTURE XX.

Femoral Hernia — Parts connected with — Diagnosis — Operation — Mr. Colles's operation.

### FEMORAL OR CRURAL HERNIA.

FEMORAL HERNIA, although sometimes met with in the male subject, is much more common in females, while in the latter, inguinal hernia is rare, compared to its occurrence in man. This may be accounted for by the difference in the anatomy of the parts in the sexes. The space between the anterior superior spinous process of the ilium and the spine or tuberosity of the pubis is greater in women, while the inguinal canal is smaller, because it has only to transmit the round ligament of the uterus, and this substance is much less voluminous than the spermatic cord, consequently the apertures through which oblique inguinal hernia should protrude are less open to receive it in women. There is but one spot where the abdominal viscera could make their way down on the thigh, and that is between the femoral vein and the edge of Gimbernat's ligament; this is called the femoral ring. When you look at this part from the cavity of the abdomen, you see a slight depression in the peritoneum at the seat of the ring, that is just on the pubic side of the iliac or femoral vein. If you strip the peritoneum off these parts, you do not clearly distinguish the ring yet, for it is filled up by a quantity of loose cellular membrane, frequently containing fat, and in scraping out this you observe a lymphatic gland involved in it — sometimes two. This cellular membrane is a continuation of the *fascia propria*, which is here altered from the appearance which it has in other situations; it is a membrane which lies between the peritoneum and the fascia transversalis, and connects these parts together. In some places it can be distinguished as a distinct membranous layer, thicker and stronger in some situations than in others, and degenerating into mere cellular membrane occasionally, as in the spot that we are particularly considering — namely, behind the femoral ring. The *fascia propria* is, as we saw, also intimately connected with inguinal hernia. You have now fairly exposed the rigid structures that form so important a part of the anatomy of femoral hernia. The boundaries of this ring as usually given are — Poupart's ligament in front, the horizontal ramus of the pubis behind, the femoral vein on its outer side, and the sharp concave edge of Gimbernat's ligament on the inner. These are the parts then which should immediately surround the neck of a crural hernia; but this is not the fact, and it is a matter of practical importance, as we shall hereafter see, to correct

this description in some parts. If the pubic side of the femoral vein was the outer boundary of the crural ring, we should expect hernia to be very frequent, as the soft yielding vein would be unable to resist even a very slight pressure of the bowels; but there is a ligamentous band going from the front to the back part of the mouth of the sheath of the vessels which separates the vein from the hernia. The true boundary of a crural hernia on the inner or pubic side is not formed by Gimbernat's ligament; and as I am anxious you should clearly understand this matter, I have the parts here sufficiently exposed, to convince you that it is the junction of this the iliac portion of the fascia lata to the pectineal portion, that extending more outwardly, or nearer to the vein, does really form the constriction on the inner side of the sac. You will have opportunities of still further satisfying yourself of this in the dissecting-room, by pushing your finger into the crural ring from the abdomen, when you can feel the edge at this junction, and examining the edge of Gimbernat's ligament, you will find it lying internal and superior to the part that really constricts your finger. The inguinal vessels take a fibrous sheath down with them from the abdomen into the thigh as low as the place where the saphena vein enters the femoral, that is about an inch and a half below Poupart's ligament. This sheath is a strong fibrous structure in some places; when laid bare behind Poupart's ligament and on the thigh, it will be seen clearly to be a continuation of the transversalis and iliac fasciæ. The outer or iliac side of this sheath has nothing to do with hernia, for it is separated from the femoral canal, into which hernia descends, by the femoral artery and vein. The pubic side of this sheath alone forms the internal boundary of the ring, so that, in fact, Gimbernat's ligament, or the third insertion of the external oblique muscle, as it is called, has nothing to do with the aperture through which a femoral hernia descends from the abdomen. Now, it is very necessary for you to recollect why a femoral hernia can only descend in the one spot, named the femoral ring, or the *upper* femoral ring, as it is sometimes called, to distinguish it from the saphenic opening in the fascia lata, which some call the *inferior* femoral ring. The mechanical barrier to hernia, external to the femoral vessels, is the junction of the strong fascia covering the iliac muscle with the fascia which lies behind the transversalis muscle — they unite nearly on a line with Poupart's ligament. Internal to the femoral vessels and their sheath hernia cannot descend on account of that strong fibrous partition between the belly and the thigh called Gimbernat's ligament.

Femoral hernia generally comes down below the falciform ligament of Hey, and escaping through one of the little openings found in what is called the cribriform fascia for transmitting the superficial absorbents and blood-vessels, or through the saphenic opening, it then either turns up over Poupart's ligament, or lies in the line of that ligament, extending towards the spine of the ilium. When the surgeon is called in to a patient who is vomiting and has colicky pains, he ought always examine the groins to find out if the case be hernia.

Now, there are some appearances which may be mistaken for crural hernia. A fatty substance found near the femoral ring sometimes gets into the exact situation of this hernia, and might be mistaken for it. I never saw this in a living subject, but I have often found it in the dissecting-room when I was in the habit of attending much there. The femoral vein may become varicose, and when it is so, it presents a tumour very much resembling femoral hernia. If you bid the patient cough, you feel it pushed down like a hernia, but there is this difference — the varicose tumour immediately recedes after the exertion of coughing is over, but the hernia, although it may be made larger by coughing, &c., yet it never recedes by itself, because the opening through which it has descended is so small. Sometimes a hernia really exists under circumstances where we do not suspect it; for instance, a femoral hernia in coming down pushes before it the lymphatic gland I before mentioned as lying in the femoral ring, or some other gland in its course, the surgeon makes the best examination he can — he feels the gland — he presses it, and it gives pain — he knows that an inflamed gland is not to be distinguished by the resulting symptoms from many cases of strangulated hernia, and at the instant, he may imagine there is nothing more serious the matter than the inflamed gland. Now, suppose he suspects there may be more, or having the least doubt on his mind, he makes the strictest investigation the nature of the case will admit, still he may detect nothing that can give him positive information, and what is he to do? Why, if the symptoms are violent, he is not only perfectly justified in undertaking the operation for strangulated femoral hernia, but it is his imperative duty to do so under such circumstances, knowing that without exposing the parts with the knife he cannot be certain of the truth — knowing that there may exist a strangulated femoral hernia without any tumour externally at all, — and that at any rate nothing can be lost, and a great deal may be gained by it. When a hernia pushes down into the sheath of the femoral vessels, how does it escape from it so as to appear on the thigh quite superficial? When it gets some way down into the sheath it escapes through one of the openings for blood-vessels or absorbents existing in the cribriform fascia, and hence it is that the seat of stricture may be much deeper from the surface at one time than another; that it is sometimes high up, and another time at no inconsiderable distance from Poupart's ligament. Now, in consequence of the attachment of the superficial fascia to the fascia lata, when a hernia has got out through one of the openings I have mentioned, its progress downwards is checked by the superficial fascia, and as it protrudes farther it is turned upwards towards Poupart's ligament and the external abdominal ring, directly over which it sometimes lies, and in this situation has the appearance as if it was an inguinal and not a femoral hernia.\* The distinguishing the one from the other is often very

\* In some rare instances this attachment is broken through, and the femoral hernia may descend a considerable way down the thigh, as I saw it do in one instance in the Lock Hospital.—*Ed. of Lect.*

difficult, and sometimes almost impossible. You might perhaps sometimes be able to establish a diagnosis by getting your fingers a little under the part of the tumour nearest the anterior superior spine of the ilium, and to push the tumour downwards on the thigh, to the place where it had been tilted over Hey's ligament, and following it downwards until you find it terminate abruptly below this part or sinking into the thigh, as it were, and perhaps you can even follow it with the end of your finger under the part through which it had escaped. If you can do all this, there is of course no doubt of its being crural hernia. Now, in the examination of such a case, you are told to find the line of Poupart's ligament, and endeavour to ascertain if the neck of the sac is above or below this line. Why, in old women, where there is a great deal of fat, it is impossible to find Poupart's ligament at all, and as to seeing if the neck of the sac is here or there, I can tell you it is easier said than done, for all the difficulty is to find the neck of the sac; if you can only find *that*, of course you will know everything about the matter. The best way to examine the case is this—get your fingers into the hollow of the thigh and push them upwards in the direction of the femoral vessels, and they will receive a sudden check from the tumour, which you are conscious is deeper seated than the neighbouring glands. There will be a decided and abrupt resistance if the case be hernia. I would defy a surgeon to be able perfectly to satisfy his mind in most cases by trying from above; but should there be no strangulation, they are easily distinguished from each other. In the *femoral* hernia the upper part of the tumour is moveable, and you can push it from side to side, but if it is strangulated (and females do not often subject it to examination unless it is so), it then becomes fixed, the upper and larger part of the tumour is not moveable, and the investigation is more difficult. To distinguish between them you could not have a more fallacious guide than Poupart's ligament, as I before explained, and all you can do is not to mind the part of the tumour which is on the abdomen, but direct your attention to that part of it which is on the thigh, and make your examination of that in the manner I have already described; it will not fail to distinguish the case. It is said psoas abscess is one of those things that may be confounded with femoral hernia. I certainly see little resemblance between them, and no difficulty of distinguishing one from the other. A psoas abscess is on the iliac side of the femoral vessels where a hernia could not make its first appearance for reasons before pointed out; the matter of psoas abscess is not prevented coming down on the thigh by the iliac fascia, or its connection with Poupart's ligament, and the transversalis fascia, for the matter is beneath all these parts, and there is nothing of any strength to prevent its gravitating. But supposing the femoral hernia be large, and extends so far outwards as to lie in the situation in which the tumefaction of psoas abscess is commonly found, the abscess is generally attended or preceded by pains in the lumbar region, and examination of the spine will enable you to detect disease there

— you will feel a fluctuation in the swelling; but there is one thing that will set your mind at rest at once — it is this: you feel in the case of the psoas abscess, most generally, a fulness *above* Poupart's ligament as well as below it, and if you place a hand on each fulness and press them alternately, you will find that their contents communicate with each other: there is nothing of this in the case of the hernia — in fact, no moderately well-educated or practised surgeon could confound the two things. The feel of a femoral hernia differs a little from the inguinal one, in a somewhat greater firmness or resistance to pressure: it is usually more tense.

The stricture in femoral hernia may exist in the upper femoral ring, or the abdominal opening of the sheath of the vessels; it may be in the aperture in the sheath and fascia lata by which it becomes superficial, or in the hernial sac. Now, by the brief sketch we made of the anatomical points of this hernia, and there is no form of hernia in which a correct knowledge of anatomy is so essential as this, you will easily conceive the proper position in which to place your patient, when about to perform the taxis, to effect the most perfect relaxation of all the structures that could constrict the protruded parts; you put him in the same position as for the reduction of inguinal hernia, but in the present case you take especial care to flex the thigh, and turn the knee inwards to relax the fascia lata, which is so particularly engaged in the strangulation. By taking off its tension you relax the superficial fascia which covers the tumour — the cribriform portion of the fascia lata and the sheath of the vessels, through openings in which it escapes on the thigh — the process of the fascia lata that joins the iliac to the pubic portions above Poupart's ligament, and through it the transversalis and iliac fasciæ and Gimbernat's ligament. Your first proceeding in the taxis is to draw the hernia down on the thigh as much as possible; you then push it backwards, as if you wished to push it into the thigh, and finally, to push it upwards towards the upper femoral ring; but you will oftener fail than succeed in your trials to reduce a femoral hernia by the taxis. It is a curious fact, but true, that you will oftener succeed in reducing a femoral hernia by the taxis in men than in women. Should you succeed, the best thing to keep it up is the common inguinal truss, with the lower edge of the pad turned more abruptly backwards; some prefer the self-adjusting truss, as it is called, but after wearing it a while they will return to the common one, then back to the self-adjusting one, and so on. Omentum is sometimes found in femoral hernia; you may see an instance of it in this preparation.

Sometimes a femoral hernia will appear only the size of a little gland, and is on a level with the upper crural ring: here you can push it directly back into the abdomen. If it mounts up on the abdomen or lies along the course of Poupart's ligament, you are first to bring it down on the thigh, and having done so, you push up the part next the ring first: if you are not cautious on this point your efforts to get up the hernia may be only enlarging its quantity: you are not to try and push the bottom of the tumour up first. There is

more caution necessary in the degree of force you use in the taxis in femoral than in inguinal hernia, because, in the former, the openings through which it comes are so small, and their edges so sharp and unyielding, that the same degree of pressure will be injurious in proportion. The operation should be performed earlier in femoral than in inguinal hernia; but remember *time* is not the criterion in these cases: symptoms alone are.

In the operation for femoral hernia you should always begin your first incision at least an inch above Poupart's ligament; for you cannot think how a low cutaneous incision will embarrass you in the rest of the operation. You are directed to continue this incision down on the tumour, exactly in the middle line; but for my part I would prefer keeping it a little to the pubic side of the middle line of the tumour. You make a transverse incision at right angles with this in form of the letter T reversed. If your first incision had not divided the superficial fascia already, it is now to be cut through; sometimes you find a second layer which you will divide in like manner; this you can do either by a light stroke of the knife, or by pinching it up with the forceps, and making a small opening with the knife held in a horizontal position, and complete the incision with a scalpel on a director; you need not spend time scratching through it as some surgeons do. You may now make another effort to reduce the hernia, but in a gentle manner, and should you fail you proceed with the operation. You need not delay looking for that process of fascia transversalis, or fascia propria which you may expect to find next; for probably it may be, as it were, consolidated with the sac or lost in the sheath of the vessels. The lymphatic glands which are here so numerous may give you some trouble; all you have to do is to cut through them, or cut them out, as they come in your way. I mentioned before that in femoral hernia particularly, it is extremely difficult often to tell whether what is before you, after going through the first steps of the operation, is the sac or the hernia itself, but the methods of discriminating which I pointed out can be applied in every case. Although you cannot get your finger into the rings between it and the hernia, you can in the closest stricture get in the top of your nail, and if you do this you may be sure that your finger is within the sac, and that what you see is the hernia; the nail is a better guide for the knife than a director, for you cannot tell how far it may be going beyond the stricture after it has entered it, and if the knife should go deeper than necessary, which is just within the stricture, it may, and indeed will, be very likely to do mischief.

If there be any fluid in the sac it is in the lowest part of it, and in this place you would prefer making your opening into it; if you feel that the sac contains omentum, you may be bolder, for there is no great harm in giving a little scratch to omentum. You next introduce a director into the opening, and slit up the sac to its neck, and make another trial at reducing the hernia, having relaxed the parts by a proper position of the limb. When you have exposed the her-

nia, if you see a bunch of intestines out, then comes your difficulty, and that difficulty is chiefly in the smallness of the aperture through which it protrudes. If Hey's ligament should *seem* to form the constriction, you get an assistant to hold down the bowels out of your way, if you cannot conveniently do it yourself, and introducing your nail, with the back upwards under the middle part of Hey's ligament, and between it and the intestine, you introduce a probe-pointed bistoury sideways, with the flat on your nail, until it is just within the stricture, you then turn the edge upwards, and raising the handle very gently, the resisting part flies open: you would have about a quarter of an inch space for your incision here before you would get to Poupart's ligament, and that would be more than enough to take off any constriction at this part; you again try the taxis. Now, if you fail you are told the constriction is made by Gimbernat's ligament — well, you run your finger along the bowels up to the ring, and having got the end of your nail into the stricture, which you can always do, and ascertained that it is the hernia, you pass in Cooper's knife with its flat against your finger, and having turned the edge, you feel instantly the crackling of the parts giving way. This allows you to get in more of your finger, and you finish the operation by dividing the stricture to the necessary extent in a direction upwards and inwards. If you cut directly inwards you risk wounding the spermatic cord. You are aware that the obturator artery, which most generally arises from the internal iliac, sometimes comes off in common with the epigastric, and then it generally runs first in front, and along the inner side of the femoral ring, and this artery might be wounded in the operation I have described; and patients have died of the internal hemorrhage from a wound in this irregular obturator artery, notwithstanding all Mr. Bell has said to the contrary. There is another and less frequent irregularity where the obturator artery having the same origin as the preceding, runs around the outer and back part of the neck of the sac. As we cannot know whether or not there is this irregular obturator artery in a case we come to operate on, it would be important if we could devise a method of operating in which there could be no danger whatever in wounding it. Now, there is a way I would propose to operate which would entirely remove all apprehension of wounding this vessel. As *it* lies in the abdomen, the knife of course must enter that cavity to wound it. In my operation you relieve the stricture without entering the cavity of the abdomen at all. You recollect what Mr. Hey describes as the falciform edge of the fascia lata; but there is really no such edge, nor even much appearance of it, except the limb is put upon the stretch. I mentioned that the fascia transversalis uniting with the iliac fascia sends a ligamentous pipe or sheath for the femoral vessels down the thigh: this sheath has a crescentic form on its pubic side. At the femoral ring you will recollect that Gimbernat's ligament does not go outwards as far as this sheath, and of course cannot constitute the stricture in femoral hernia, but the stricture is formed by a portion of the iliac division of the fascia lata, which runs

between the femoral vein and the spine of the pubis. Now, you begin your incision from an inch or an inch and a half above Poupart's ligament to an inch and a half below it, parallel and close to the pubic side of the femoral vein. About half an inch below Poupart's ligament make a transverse incision extending from the first one to the spine of the pubis, turn up the flap and cut through the superficial fascia in the same direction and extent as the cutaneous incision. Having opened the sac as high as Poupart's ligament, divide this superficial constriction to the same extent, but in the direction towards the spine of the pubis. Should this not liberate the hernia, introduce a director external to the sac, on its pubic side, and on it the probe-pointed bistoury, and after entering its point about the eighth of an inch above or within the attachment of the iliac portion of the fascia lata to the pubic portion, and keeping the flat of the knife close to the pectinæus muscle, divide this attachment to the necessary extent: this you can do without entering the abdomen. The part of the fascia lata you cut in this operation is not attached to the bone, but the fascia which covers the pectinæus muscle. I assisted a gentleman who was kind enough to operate in this manner at my suggestion, and it completely succeeded. I attempted it myself, but the patient was a fat woman with an over-hanging belly, and I was obliged to operate on her while she was in bed, and from these unfavourable circumstances I had to desist. Besides the avoidance of wounding the irregular obturator artery, which I conceive this method of operating effects, there is another and very important advantage obtained by it — namely, that as the knife does not enter the abdomen, and as the incision through the sac is made at some distance from that cavity, the likelihood of the operation being followed by peritoneal inflammation will also be diminished. To perform this operation your patient must be placed horizontally on a table, with the shoulders a little raised and the legs hanging over the edge.

If the operation for strangulated femoral hernia is delayed too long, that will sometimes happen which a patient of mine experienced. Six days after the occurrence of the hernia I operated on a lady; after a few days, during which she seemed to be doing well, she got a colic; this went off, but it returned again, and thus it kept coming and going for twelve months, during which time she never had a solid stool. At the end of that time she died, and on examination after death, the portion of the bowels which had been strangulated was found thickened and contracted very much in size. *Artificial anus* is an occasional consequence of hernia. If a patient recovers with an artificial anus it may last for six months, during which time all the fæces are discharged at the groin. At length he passes a small quantity by the anus — more and more comes daily by the rectum, and the artificial anus contracts gradually in size, until at length it closes altogether. After some time, perhaps in consequence of some irregularity of diet, it breaks open again, and the patient has renewed all the inconveniences of the artificial anus for a while longer. The

recovery from this state is owing to the tendency of the peritoneum to draw itself into the abdomen. There is one case of artificial anus from which the patient never gets well—which continues with him through life—it is where the cavity of the abdomen has been penetrated by a wound, and a part of the bowels divided. If symptoms of strangulation or obstruction occur at the artificial anus, introduce a director into the opening and stir it about, and on withdrawing it a quantity of fluid fæces flows out, and the patient is well. Eversion of the gut may take place in an artificial anus, and if you are called in immediately you may be able to put it back, but if it remains out any length of time, you will never be able to return it. Sometimes these cases appear to be kept open by the projecting of a part of the intestinal coats between the orifices of the two portions of intestine, preventing the contents of the portion coming from the stomach from getting into that leading to the rectum, and various methods have been advised to remove this partition. I think moderate and continued pressure, as advised by Dupuytren, is the safest practice and most likely to succeed.

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## LECTURE XXI.

Umbilical hernia. — Wounds of arteries — Secondary hemorrhage — Ligatures.

### UMBILICAL HERNIA.

THERE are two distinct forms of hernia often confounded under the name of *umbilical* hernia. The umbilical ring, you know, is a circular aperture in the *linea alba*, through which pass the umbilical arteries and the umbilical vein, from between the abdomen of the fœtus and the placenta of the mother. Along with these parts there also passes, for the space of quarter or half an inch, a little cul-de-sac of peritoneum, the length and distinctness of which is much increased by gentle traction on the umbilical cord: enough of it is always discoverable to show that the child in utero is very liable to a protrusion of some of the abdominal viscera through this ring, and that the little depression or pouch of peritoneum is a ready commencement of a hernial sac. But these parts are differently circumstanced very soon after birth, and that which had been the weakest point in the abdomen as a resistance to hernia, quickly becomes the strongest from the contraction of the vessels, or rather the ligamentous substances into which they are converted, and from the firm cicatrix that forms after the separation of the cord. It is obvious, therefore, that true umbilical hernia is not likely to commence its formation except at the earliest periods of infancy or before death. Now hernia may protrude at any part of the *linea alba*, although such an occurrence takes place generally near the navel. You may often have noticed, in dissecting this part, slit-like apertures here and

there for the transmission of blood-vessels, and it is probable that one of these may be enlarged by the pressure from behind, so as at last to allow the escape of a hernia, and that such may happen at any period of life. You may, however, find this form of the complaint congenital as well as that through the umbilical ring. When the hernia from malformation is very near the ring it is not always easy to determine to which kind it belongs. We are told that if we feel the neck of the hernia, we will find it round in the true umbilical form of the disease, and of an oblong shape in the other, and when you *can* pass your fingers round the neck of the tumour, you perhaps can recognise such a distinction, but a better mark of distinction may be drawn from the fact, that the umbilical cicatrix will not be distinguishable on or about the hernia if it has protruded through the ring, while in the other case, it will be generally distinguishable on some part of the tumour, above or below, according as it is situated below or above the ring.

Writers on umbilical hernia appear to pass over the subject very carelessly. Now, I know nothing in surgery more difficult than to tell when the operation is required for strangulation of it. Without any strangulation at all in the case, the patient will be subject to nausea, vomiting, and obstinate constipation; to colicky pains, and to that coldness and faintness which such fits will be attended with, whatever their cause may be; and frequently there will be at the same time great tenderness in the tumour from flatus or temporary obstruction. In at least one case out of every six you meet with, you will not be able to return an umbilical hernia, for you do not often see them until they are strangulated, and when they are so, they may carry off the patient in twenty-four hours, as happened to one case I was called in to see. The woman had eaten her dinner heartily on Sunday, and she was dead on Monday evening. There is something peculiar in these herniæ that causes peritoneal inflammation sooner than others; they are extremely different from all other herniæ, and in nothing more so than in the severity of the mischiefs arising from them, and the rapidity with which they run their course. When umbilical hernia arises from malformation, it is a very formidable disease; it forces its way through slits with sharp edges, and which from their form are calculated to exert strong and acute pressure on the viscera protruded through them. Sometimes, after the sloughing off of the navel string, the opening for the cord may not close, and a hernia may protrude, but in this case the protrusion does not take place until two or three weeks after birth. In cases where we are so fortunate as to effect a cure of ascites, the patient is very liable to get ventral hernia; so likewise are women after parturition, particularly if they have borne many children. You are in all these cases to employ the umbilical truss. If the hernia be only omental, which is often the case here, and that you cannot entirely reduce it, you should use the laced bag, which will give a gradually increased and steady pressure. When there is a deficiency in the abdominal parietes, you are to proceed in this way: put in the hernia, get an

assistant to grasp the integuments over the part and draw them together, then apply adhesive straps over them, which will retain them in this position, and give them the disposition to adhere together, and this, if successful, will offer a resistance to future protrusion. With infants you proceed in this way: cut something more than half a sphere out of cork, cover it with shamois leather, and keep it on the umbilicus with adhesive straps. For my part, I never think of putting a regular bandage on infants for this hernia. You are to take care that the cork only lies with its gentle convexity *on* the umbilicus, and that it is not so small as to fit *into* the umbilical ring, as it would be only doing in front what the hernia is doing behind — namely, preventing the closure of the ring.

This hernia appears in fat persons as a flat broad swelling, the boundaries of which cannot be distinctly ascertained; in those of an opposite habit the tumour assumes a pyriform shape, and is distinctly circumscribed. It is more frequently irreducible without strangulation than other herniæ, probably owing to the enlargement and adhesions of the omentum, which is almost always present in this species. There is this peculiarity in umbilical hernia, that it sometimes wants a peritoneal sac. As there is no opening in the peritoneum here naturally, it must, I should think, have a sac in the commencement; whether it disappears by rupture or absorption from about the hernia, I do not know. A knowledge of the fact, however, must make us very cautious in our first incision through the integuments, lest we come at once on the naked bowels and wound them. The sac when present is seldom thickened, except at its neck. We may make our incision through the stricture either upwards or downwards, but we should recollect that an adhesion of the intestine to the peritoneum within the abdomen often occurs, and that without precaution it might be wounded in liberating the stricture; you must introduce the finger before the knife, during its division. Should the omentum be so altered in structure as to render its reduction inexpedient, it should be removed with the knife.

I have met a very extraordinary appearance in women after being brought to bed. In the first case I ever saw of it, I was called in, in consultation with two eminent accoucheurs of this city, who could not tell what to make of the case. On feeling the abdomen while the patient lay on her back, I felt an apparent deficiency in the abdominal parietes, of a lozenge shape, and of about a hand's breadth, the longest diameter being vertical. Well, we could make nothing of it. I saw her some time afterwards, and having a fair opportunity of examining her in every position, I availed myself of it, and found that when I made her stand up, it was all a deceit, for the recti muscles, which had entirely disappeared in the recumbent posture, now became prominent. I cannot understand this.

## WOUNDS OF ARTERIES.

It is unnecessary for me to enter into a description of the process

nature employs in the suppression of hemorrhage from wounded arteries. You will find in Jones's work everything useful on the subject; I shall, therefore, only draw your attention to a few practical considerations. When an artery is wounded there is immediately a gush of blood thrown out in jerks; after a little the stream becomes less, a little after it but dribbles from the wound, and not per saltum, as it did at first, and finally, it ceases altogether; this is what happens from a simple incised wound. As the flow of blood diminishes, you perceive a fulness forming about the wound, and perhaps you can detect a slight throbbing, although no blood continues to be discharged. Now, what is the process by which nature thus restrains or stops a hemorrhage? If the artery has been completely cut across, it immediately retracts within its sheath, in consequence of the natural elasticity of the vessel, and simultaneously, the blood it discharges is in part pushed into the cellular membrane connecting the artery to its sheath, and into the general surrounding cellular membrane, where it is entangled, and soon coagulates. This last circumstance is aided or accelerated by the patient growing sick, or perhaps fainting, when the force of the heart and whole arterial system is weakened. It has besides been proved by experiment on animals bled to death, than in proportion to the quantity of blood lost, the quicker is the coagulation, and the firmer is the clot. Besides the retraction of the artery within its sheath, its calibre is diminished by contraction of its coats, particularly at the cut extremities, and after a little time the blood begins to coagulate in the artery itself, and the coagulum extends along the canal of the vessel to a greater or less distance, but rarely beyond the first large branch given off by it. All that has been done as yet, however, often gives but temporary security; for when reaction sets in, when the patient recovers from his alarm and the sudden loss of blood, all these barriers may be broken down, and the hemorrhage recurs with its first violence. But these first attempts may become sufficient, permanently to save the patient — for the cut surface of the artery will inflame, will pour out coagulable lymph by means of the *vasa vasorum*, this becomes organised, the coagula of blood begin to be absorbed, and the artery to contract, until from adhesions of its sides it becomes a solid cord, like a ligament, and of course no farther hemorrhage can take place. If a man gets a punctured wound in a part of his limb, suppose, where we know there are arteries endangered, we are not to pronounce that they have escaped, because there is no hemorrhage; for the sheath of the vessel may interpose, like a valve, between the blood and the outer orifice of the wound, and the other soft parts may have so fallen together that no blood can make its escape, or at least but a little at intervals. The best mode we can adopt here will be to treat it as a simple case — to keep the limb as quiet as possible, and to put a tourniquet loosely round it to prevent accidents. But, suppose, on your visiting this case next day, you find there has been an oozing of blood from the wound constantly going on, that the patient had had one or two fits of sinking, like fainting, that he became very

weak and pale, you have reason to suspect that hemorrhage is going on from some wounded vessel. Pressure would be perfectly useless in a case of this kind, because the quantity of coagulum round the vessel will effectually bear off any degree of pressure you could employ, and besides the patient could not bear any pressure on the part from the pain it would give him. All you can do to save the patient is at once to dilate the wound, and search for the wounded vessel, and put a ligature on it. An artery of some size even, may be wounded without bleeding externally, but it may bleed internally, and this we know, by there being greater swelling than could be accounted for by inflammation; by the pain, by faintishness and sickness of the stomach, by the patient's anxious countenance, his restlessness and tossing about; after a time he will grow delirious, attended by a sinking of the system, and he dies either of weakness from loss of blood, or of gangrene caused by the extravasation into the limb. But, although this is the most general cause and termination, if the mischief has not been properly attended to, it may happen that, after a little, the bleeding ceases of itself, the artery closes, the external wound heals up, and an aneurism be formed. The wound in an artery may heal up by the first intention like any other structure, and give as little trouble, if the direction of the cut is on a line with the vessel. If it be transverse the chances of such a favourable issue are greatly diminished; but experience has shown that an oblique wound of an artery much more seldom admits of a union of its lips than any other. On the whole, arteries do not so readily unite by the first intention as do most other structures, and for one reason, among others, that however wounded, there is a strong tendency in the lips of the wound to separate from each other, and they can, with difficulty, be kept in contact by any means we can employ. When an artery is partially divided, the cut part must go through the process of ulceration: this prevents reunion, and secondary hemorrhage will occur. I have known instances occur where pressure had been made in an improper manner over a wounded artery, and that the bleeding continued from time to time to take place — that all pressure being removed the artery has healed up perfectly of its own accord. Where there is a firm support or counter-pressure under a small artery, such as the temporal, pressure will generally be sufficient to stop its bleeding permanently; even one so large as the coronary artery of the lips we know will seldom require more. If a number of small arteries are divided, as in the operation of removing a testicle, they require no particular attention, the bleeding will generally stop of itself, and not recur: sometimes, however, this is not the case, and if you should think they are bleeding too much, or that although the quantity of blood is inconsiderable, yet you do not wish to dress up the wound while even so much is coming, the application of a little spirits and water, or turpentine, will almost always stop the oozing.

In the case of an artery in a limb being wounded, such as a slight puncture in the brachial in venesection, there is no good in bandaging the limb — it can do no service, but may the contrary; there-

fore leave the limb loose. Pressure may be practised on a wounded artery in several ways. Suppose the anterior tibial artery divided, by the slipping of a ship-carpenter's adze, where it lies on the instep, we may either draw the lips of the external wound together, and apply our compression over the skin, or we may leave the wound open and apply the compress on the artery itself. If you adopt the first method an aneurism may follow, but in the second the artery will be obliterated above the wounded part, while the end below this will granulate. If you choose to compress the vessel with the intervention of the skin, there is one thing you must on no account neglect, and that is not to leave any coagulum in the wound, wash out every bit of coagulated blood before you proceed farther, for if you do not, this will happen,—you apply your compress over this coagulum, and bind it down with a roller with what you consider sufficient tightness, but in twenty-four hours the coagulum will begin to be absorbed, and, as it diminishes, your pressure is lessened, and secondary bleeding will occur. The quantity of pressure you employ is a matter of consequence, for if you use too strong a pressure on a vessel lying on a firmly resisting part, such as the temporal artery, or this artery on the instep, you will cause ulceration of the wound, and this ulceration will extend itself to the artery, and cause secondary hemorrhage; and if you employ too light a pressure, you will not keep the wounded surfaces together, and will fail in your object. A few folds of linen in the graduated form, bound down with sticking plaster, and perhaps a light roller, is all that is necessary for a vessel in this condition. The graduated compress is simply a cone composed of bits of linen or lint, each successive bit being a little larger in diameter than the one that preceded it, and the smallest is first laid down. The degree of pressure to be applied in those cases is of much importance. I have often seen in a case of wounded temporal artery, or where it was opened for the purpose of abstracting blood, that a country fellow, to make sure of effectually preventing more blood being lost than what was deemed necessary, will roll up a piece of money in some linen, and bind it so tight on the wound, that in a week, when the bandage is removed, the blood will flow again; he will then bandage it tighter than before, and it not unfrequently happens that a portion of integument, the size of the coin, will be detached by sloughing; yet the disposition in the artery to bleed is not in the least diminished. One cause of the error of using too strong a degree of compression is, that the artery can be seen pulsating violently, and the idea is that you have to oppose the whole force of the heart before the bleeding can be suppressed; but this is not the case, for the blood is not sent into a wounded artery with any thing like the force that it is into an uninjured one. When you wish to compress the artery itself, the best thing you can employ is a bit of sponge, or a bit of agaric cut into a proper size, and you leave it to make its way out of the wound of its own accord. After a sufficient time has been given for the compress to come out, and that it still remains, you try to remove it, and you

find it is not free or loose enough. Well, you leave it a day or two more to become loose by the suppuration, but on then trying again to draw it out, you find it faster than before, although the wound may be suppurating freely. How does this happen? It happens from the granulations shooting into the pores of the sponge or agaric, and if you were to force it out, you would give the patient a great deal of pain. To prevent this occurrence, all you have to do is to cover the sponge with a bit of fine linen before you introduce it into the wound. I need hardly mention, that it is by all means preferable to place the compress over the skin, if it be found possible to effect your purpose by doing so, because filling up the wound from the bottom delays for a long time the healing of the wound, and when healed at last, a large cicatrix, comparatively, is left behind.

Secondary hemorrhage can sometimes be accounted for, and sometimes not. In some constitutions there is a disposition to bleedings. There are certainly many instances of secondary hemorrhages where there can be discovered no *local* cause for them, but generally the reverse is the case. If the case be a simple incised wound, and that, contrary to your expectation, it had not made any progress to heal in eight or nine days, that it began to slough, or without this, that the granulations which had begun to form are swept away by absorption, the wounded artery, although not so prone as other parts to these things, will be very likely to bleed again; in fact, until the wound about the artery is healed, you must never believe that your patient is secure from secondary hemorrhage. I have known the blood to gush out, unexpectedly, three weeks after every thing appeared to be going on right, and the bleeding recurred three or four times. The most frequent cause of secondary hemorrhage is disease of the coats of an artery; they are liable to some soft depositions, which dispose them to ulceration and prevent their taking on the adhesive inflammation: they are also very liable to calcareous deposits, particularly the larger arteries: indeed, so much so, at the later periods of life, that it may almost be considered as one of the natural conditions of that age; the deposition of the chalky matter being preceded by a wrinkled or puckered condition of the coats, with the nature of which I am unacquainted. When an artery undergoes this degeneration, it will neither admit of the application of a ligature nor pressure for the suppression of hemorrhage; and besides there is often a ring of ulceration, or some detached spots of ulceration, round the margin of the bony matter, that may cause hemorrhage or aneurism, even without any external violence; yet this last condition is not so common a cause of mischief as the first I mentioned. Now, sometimes the methods I have alluded to for controlling hemorrhage will not succeed, nor will cutting the artery completely across, nor the application of nitrate of silver, or sulphate of copper, and you must have recourse to putting a ligature on the vessel. It is very essential to the success of a ligature that it be of a proper thickness and shape: it must be round and firm, and for an artery the size of the radial, a single thread of white silk, or two at the very

most, will be sufficient. Now, you must draw the ligature sufficiently tight, when you have passed it round an artery, to effect a division of its internal and middle coats. You need be under no apprehension that you will cut through all the coats of the vessel, in whatever degree you tighten the thread, but as you can almost always feel the giving way of those two coats you want to divide, you may make your second knot on the ligature when this has been accomplished. Should you have to take up an artery that has given way by ulceration, it would not do to operate exactly at the ulcerated part; you should make your incision at least three-quarters of an inch above the ulcer, and if it should be opened by sloughing, you must take it up still higher. Sometimes in aneurism you will have to take up the artery at a considerable distance from the tumour, to avoid operating on a part of it probably affected with the same disease that produced the aneurism itself — for instance, for an aneurism in the popliteal space, the femoral artery is included in a ligature high up in the thigh. I mentioned that, provided an artery be sound, there is no danger of cutting through it entirely by tightening a ligature on it; but the case is very different if it partakes of certain diseases in which it lies, as hospital gangrene, for instance. In such like cases as this, you may cut through an artery with a ligature without its coats offering any resistance whatever. Under these circumstances, if styptics, one after another, fail in stopping the bleeding, you must endeavour to trace the vessel to some distance from the disease, and there take it up.

In passing a ligature round an artery, you must use every precaution to disturb it as little as possible from its bed, and it is on *withdrawing* the needle that this disturbance is likely to take place; therefore after getting the ligature round the vessel, when you are about to remove the instrument, put your finger on the artery to keep it steady. The operation of taking up a wounded artery often fails, from the bad constitution of the patient. A gentleman got a wound of a small chisel in the thigh, which opened an artery; he was a strong, healthy young man, and apparently a better subject for the operation than I was. I took up the artery, and a train of bad symptoms followed. First came nausea and vomiting, then swelled belly, then erysipelas of the limb, then profuse discharges from the wound, and in fact he was in very great danger of his life, and required the greatest care and attention to save him. Your operation may fail from not putting the ligature fairly round the vessel; if you put it on obliquely you do not divide the internal and middle coats of the artery properly, and, without effecting this, you can have little hope of success, for the coats cannot unite permanently. If the ligature be too broad you may also fail, for it may only divide two-thirds of the circumference of the vessel, or not so much. Including some of the neighbouring soft parts in the ligature with the artery may cause secondary hemorrhage; for here, too, the internal and middle coats will be but partially divided; and, besides that, as the included parts give way by ulceration or sloughing, the pressure of the ligature on

the vessel diminishes or ceases altogether. In this case the bleeding recurs on the sloughing of the wound. Sometimes the wound in the artery is not within two or three inches of the external wound. Suppose a man gets a stab of a knife in the arm, the knife runs up two or three inches, and then wounds the vessel — what are we to do in that case? Why, we are told the case is very simple — that all we have to do is to thrust a probe into the wound, and that it will of course guide us to the injured vessel, when we can slit it up the intermediate parts, get at the artery, and take up! No such thing — the probe will, in fact, run in any direction in which it is pushed, and will not lead to the artery at all, except by mere chance. But, suppose, it does lead to the spot where the artery is, you think of course it would be a very easy matter to take it up and tie it; it is not. We may talk as we please about our fine operations, but I protest I do not think in all surgery there is an operation *half* so difficult as taking up a wounded artery. You look and you see the blood coming, and you think you are just at the wounded spot of the vessel; but perhaps the artery is wounded an inch, or an inch and a half, or two inches, from where you see the blood issuing, and the difficulty is increased if the operation is delayed for eight or ten days; you think you are well acquainted with the relative situation of the parts, and on cutting down you are surprised not to find the artery. Although you have two inches of it exposed, you can neither see or feel it pulsate; one of your assistants will cry out that he has it, but no one can feel it but himself, and it turns out that it was the pulsation of the artery in his own finger, which he mistook for that of the artery you were looking for. Another thinks he sees the pulsation, but no one else can. You have no conception of the difficulties of the case. If you make up your mind that you will not find the artery as superficial as you might, from mere anatomical recollections, expect, you will yet rid of one of the causes of embarrassment. Take your time and you will get rid of another.

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## LECTURE XXII.

Wounds of arteries (*concluded*).—Aneurism—Diagnosis—Treatment.

It seems very plausible to say, in looking for a wounded artery, follow the track of the wound in the part, and you *must* come at length to the vessel, but it is very difficult even to trace the course of the wound; the cellular substance is every where stuffed with blood — nerves, arteries, tendons, and muscles, are all of the same colour; they are all out of their position; you lose your way among them, and the only way to find it again is by dividing fresh parts; even when you are directly upon the wound of the vessel, you will not recognise it, for the contact of the air will prevent its bleeding

in many instances. Well, despairing to find what you seek, you give up the search, and dress the wound, in the hope that, as no blood is coming, the artery may not, after all, be wounded — or at least that the hemorrhage will not return. You are scarce at home before a message is sent in great haste to let you know that the man is bleeding to death ; you return, and find no bleeding from the wound ; it has stopped again. You remove all the dressings, you see a small stream of blood coming, and you try to put a ligature round the part from which it issues, but you find you are only trying to tie a piece of coagulum in the sheath of the artery. In fact, you must get a full view of the wounded artery, and to do this, you must introduce your finger into the wound, tear out all the coagulated blood, and, if necessary, use the knife also. You sponge it all away, although it gives great pain to the patient ; you now look for the artery, you may miss it three or four times, but persevere until you find the orifice, and when you do, and have dissected the parts clean about it, put on two ligatures one above and the other below. In following the vessel you must not hesitate to cut muscular fibres across if necessary, but of course only when you see it is so. In cases where a very deep wound is inflicted, as in the thigh, and that there is considerable hemorrhage, the best way is to take up the main artery at once, or the limb may fall into gangrene from the impaction of blood, or from the debility caused by the loss of blood, or profuse suppuration may follow, which at last may involve the artery itself, or may wear the patient down by hectic fever. When you have succeeded in doing for the patient the most that circumstances will admit — that is, secured the artery, you had better not be in too great a hurry to pronounce your patient out of danger ; for, as the case I mentioned to you before, proves, there may be danger of which you had no forewarning, under more favourable circumstances than those you would, in such a case as we last supposed, encounter.

There are some cases where a wounded artery will not bleed at all, even when the vessel is of great size, and the injury of so great an extent as the complete division of it. This is where the artery has been torn asunder — where there has been much laceration. Where a man's arm had been torn from his body by getting entangled in the machinery of a mill, I never heard of hemorrhage following. It is a singular circumstance, but it is true. Here is a cast of a case of the kind that was under my own care ; the arm and scapula were torn away, and the nerves and subclavian and other arteries were hanging like so many cords from the trunk, yet not a vessel was tied, nor a drop of blood lost, and the man recovered, and is now strong and healthy. I mentioned that operations on arteries were sometimes easily performed, and sometimes the contrary, without any censure or praise being due to the surgeon in either case. We do not know why it is so, but we can at one time take up an artery with the greatest ease, and at another it will be the most difficult thing imaginable. Most of the cases of wounded arteries which have terminated fatally, owed their fatality to the surgeon not making

himself certain that it was really the artery he had taken up : you should be in no hurry, and never leave the patient with the mere *belief* that it was the artery you tied ; you must always be *sure*.\*

The operation of tying a wounded artery sometimes saves the limb, but sometimes it fails, though taken up in the best manner. If it be the femoral artery, for instance, that is wounded, that man will probably die ; after you have taken it up, the limb falls into gangrene, though if the same artery was taken up for popliteal aneurism, the patient would recover. Now, let us suppose a man gets a stab with a penknife which wounds an artery. When you go to see him, you are told he bled a great deal, but the bleeding has stopped ; we are not at all justified in seeking for that artery to tie it up. The persons who were present when the wound was received, not being perhaps accustomed to see much blood, may have exaggerated in their account of the quantity lost ; in fact, you are to treat this case as if the artery was not wounded at all. Sometimes when an artery is wounded, the whole cellular membrane of the limb is injected with blood. If in bleeding in the arm, the vein be transfixed, and the artery behind it wounded, the whole cellular membrane of that arm may be injected with blood in twenty-four hours. I do not consider this a favourable case for immediate operation. Wait for five or six days, when the bleeding will have ceased, and the blood begins to be absorbed.

#### ANEURISM.

Writers on aneurism divide them into two kinds, — which they distinguish by the terms *true* and *false* — also, into spontaneous and traumatic aneurisms. By *true aneurism* is meant the dilatation of the coats of an artery into a sac or pouch, which gradually enlarges from the impetus of the blood. By *false aneurism* is meant a rupture of the coats of the artery from some previous disease, and the escape of the blood in small quantities into the neighbouring cellular substance ; that this causes adhesive inflammation ; that the

\* I have seen many instances of the soundness of this advice, but one deserves to be mentioned. A boy, in some lane off Aungier-street, was stabbed with a shoemaker's knife in the bend of the elbow, and the brachial artery was wounded. A man who was present had the presence of mind to thrust his thumb into the wound instantly, and stopped the furious hemorrhage, until he brought him to the house of the late Dr. Duggan. It happened that a moment after the late Mr. Todd was driving past, and he stopped to offer his assistance, and was quickly followed by another surgeon. After nearly an hour was consumed in searching for the wounded vessel, *something* was included in a ligature, and the general *belief* was that it was the brachial artery. The blood ceased to flow from the wound, which was then dressed, and the boy was conveyed to the hospital of the House of Industry. Unfortunately, hemorrhage unexpectedly recurred during the night, and carried off the patient before it was discovered. On examining the condition of the wounded parts next morning, it was found that the artery had not been tied, but in its stead the brachial nerve had been. The high professional character of the operators in this case gives more weight to Dr. Colles's caution to his pupils than any form of words could do.—*Ed. of Lect.*

blood is in consequence circumscribed by a sac of this cellular membrane; that this sac becomes daily thicker and stronger, and its capacity enlarged, and approaches the surface in general, until it finally bursts by over-distension. Some eminent writers deny the possibility of aneurism by dilatation of the coats of the artery; others, on the contrary, assert *all* spontaneous aneurisms commence at least by dilatation, however they may afterwards change this character, and become aneurism by rupture, and a great deal of ingenious argument, and even experiment, have been lavished on the question, by the favourers of one doctrine or the other. When you read Scarpa and Hodgson, you will probably have read enough to inform you on the merits of each party's positions, and I believe I will not interfere much with the practical consideration of the disease by leaving your minds unprejudiced for the examination of those authors. Accidents may cause aneurism without any external wound, as, for instance, a man going up a ladder feels something suddenly give way in his ham; he puts down his hand and feels a very small beating tumour there, the commencement of an aneurism; or a porter, carrying a heavy load along the street, will experience exactly the same thing, without being conscious of having used any particular or sudden exertion at the moment. Sometimes an aneurism will come on in the same place without being perceived by the patient, or his being able to say when it began. He will tell you, perhaps, that the first intimation he had of such a thing was brought about in this way; he had occasionally, for some time, felt a little uneasiness in his knee, or that he had merely felt a weakness in it; that he was not able to make as much use of his limb as he used to do, and that on rubbing his knee one night he was surprised at feeling a little swelling in his ham, and was particularly struck with its beating or throbbing. In this last way internal aneurisms begin, as those of the thoracic or abdominal aorta. Many of those are discovered, and even of considerable size, in the bodies of those that die of other diseases, and in whom, during life, the existence of aneurism was never once suspected. When pain accompanies the progress of a popliteal aneurism, it is not felt in or about the tumour itself, but in the ankle, and not equally severe at all times, for it generally grows worse in the evening. The limb soon becomes œdematous, and this also becomes worse in the evening. These cases of spontaneous aneurisms are much more frequently met with than those which spring from injuries of arteries. An artery may have five or six aneurisms at the same time in different parts of its course. Some arteries are much more prone to spontaneous aneurism than others; for instance, the large ones are much oftener the subjects of it than the smaller, and those of the lower extremities than those of the upper by a great deal. This seems to result from the fact, that diseases in the coats of these vessels are more frequently met with in those arteries in which aneurisms are mostly observed to occur.

The contents of an aneurismal sac, when of moderate or large size, appear to be disposed in layers. Often one layer is coagulated

blood, the next like fibrin in a great measure deprived of its red particles, then a layer of blood again, then fibrin, and so on, laid over each other like the layers of an onion. When an aneurism is about to burst a marked difference can be observed between it and an abscess under similar circumstances. In the former, the integuments are tense, and the most prominent part is most so; while in the latter, it is the most relaxed and soft, and it bursts at length by one or two small openings. In the aneurism the integuments become of a dirty brown colour; a patch of it dies and sloughs off; a gush of blood comes, and sometimes the patient dies instantly, but is sometimes reprieved by a bit of coagulum falling against the opening, and for a while obstructing the blood's passage like a valve. In the very first instance nothing but some watery fluid may escape from the opening in the aneurismal tumour, but ere long blood will inevitably follow; by pressure we keep the closing scene longer away, but on the patient coughing or turning in bed, the little slough may separate: by our exertions we may ward this off for twelve or twenty hours, but the pain is excessive, and there is extreme anxiety and delirium. No structure in the body long resists the enlargement of an aneurism or its coming forwards to the surface. An aneurism of the arch of the aorta will make its way through the sternum or ribs, and yet no ulceration, no matter will occur—it seems a simple absorption from pressure. Aneurisms in the great cavities are often very difficult to discover. In the thorax, the unyielding nature of the parietes obstructs the examination, and also the fact that certain diseases of the heart give exactly the same symptoms. In the abdomen, a train of symptoms will often arise from anxiety of mind, pressure of business, and close and long-continued application to it, such as palpitations of the heart, and pulsations in the arteries of, it may be, one particular region, and that thrill in the pulse that will require some care to distinguish from aneurism. As regards aneurism of the aorta in the chest, there is one thing worthy of remark, that although the tumour presses on the vena innominata, and diminishes its capacity in a very remarkable degree, yet, during the patient's lifetime, there will be no complaint made of this obstruction to the return of the blood from the head, nor will there be any external manifestation of venous congestion anywhere. In the abdomen, also, you are liable to mistakes, and so deceptive are the signs sometimes, that patients have died of aneurism in the abdomen, in whom the disease was not in the least suspected to have existed, nor in whom could the least pulsation be perceived. I recollect a woman who died of aneurism of the cœliac axis, and the only symptom that woman had, or complained of, was a burning pain in her back; the only ease she could get was to lie on a hearth-stone on her back, and the cold gave her relief. After death, it was found that the aneurism had affected the spine by its pressure, and it was probably from this circumstance that the burning sensation arose.

There is a disease described by Dr. Baille in some of the journals;

it is a pulsation in the epigastric region, sometimes beating very violently, and which has often been confounded with aneurism. I think you may distinguish them in this way: recollect that the epigastric pulsation is never felt below the umbilicus. Now, when you come to feel it, there is certainly a resemblance to an abdominal aneurism, but there is not the thrill in it which is distinguishable in the other. Having felt the front and side of the pulsating part, lay all the fingers of one hand on the epigastrium in the middle line, and press with moderate firmness: now lay the fingers of your other hand at one side of this line, where, before pressing the centre, you had the pulsation, and you will find it all gone, nor will you have any perception of it so long as you maintain the pressure on the middle of the pulsating space; this simple experiment will always show the true nature of the pulsation. This singular affection will not be equally well marked at all times — sometimes the beating will be very violent, at other times hardly to be felt, or not at all; it does not seem to be much affected by exercise, except, indeed, that moderate exercise, persevered in daily, will often cause it to disappear, or any other means successfully employed to improve the general health. I do not know how it is produced, but it is most prevalent in weak nervous people, and rather in the sedentary than the active.

External aneurisms even are not always easily distinguished from other things. I remember at one time most of the first-rate surgeons of this city met in consultation at the Lock Hospital on a tumour above the clavicle; they all, with one exception (old Mr. Hugh), declared it to be an aneurism. He, however, dissented, and I took the man into Steevens's Hospital to see the issue of it, and sure enough it turned out to be abscess. I saw a case once which deceived a great many — it was a pulsating tumour in the groin, and as the proposal to take up the iliac artery was not then advanced, they did not know what to do with the case. It was therefore let to take its own course, although no one doubted its being an aneurism, and afterwards it turned out to be an irregular growth of the acetabulum from disease of the hip-joint, and the swelling had thrown the femoral artery prominent in the groin. In my opinion, the feel of an aneurism, and that of a tumour over an artery, are in general easily distinguishable.

The pulsation of a tumour over an artery is a simple rising and falling of the swelling, but in the pulsation of an aneurism you can likewise feel a dilatation and contraction. I will not pretend to say that it *does* contract and dilate at each stroke of the heart, but you have the impression as if it did. In some cases of aneurism you must press heavily, and for some time, before you can feel the pulsation; while in others, such a pressure will prevent your feeling it at all, and you can only distinguish its pulsation by touching the tumour as lightly as possible. In cases where the touch, however applied, will give you no feel of pulsation, you will often be able to perceive it by sticking on the swelling a bit of coloured paper, and keeping your eye steadily on it, you will see it agitated by each

stroke of the artery. These difficulties in distinguishing an aneurism from an abscess, or tumour in the immediate vicinity of an artery, sometimes are so great, and an error might be productive of such dreadful consequences, that it is not surprising many rules have been given to form a correct opinion. There is, however, one contrivance that cannot fail to clear up every doubt when all else fails, and one itself not attended with any danger or inconvenience whatever; it is a kind of needle with a groove running along it. This you introduce into the suspected swelling, and on withdrawing it you will not see either blood or matter in the groove, as the case may be aneurism or abscess. The little wound made by the instrument is without danger in either case, and heals rapidly.

There are some processes by which a spontaneous cure of aneurism may be brought about. Thus, suppose the tumour gets a slight blow; a bit of coagulum may be detached, and thrown so into the opening communicating between the artery and the sac as to constitute a perfect barrier between them, or at least so diminish the current of blood into the aneurism as to allow its contents to coagulate, and eventually the whole tumour to become solid, and be partially or totally absorbed in time. When speaking of mortification, I mentioned that there is a tendency in the arteries leading to a mortified part to become, to some extent, filled with a coagulum, and that this plugs up the vessel so effectually as to prevent hemorrhage on the separation of the slough. Now, the sac of an aneurism sometimes becomes highly inflamed, and mortifies in its whole extent, and on its separation no blood will issue, but the artery will become permanently closed, and the disease be cured. To effect this, however, it is found essential that the inflammation and mortification should not be partial; it must not be confined to a third or fourth of the aneurismal sac, but must extend as far as the artery, in order that the necessary disposition be given to the blood in its canal to coagulate; and as the sac is a new formation, and therefore weak in its vital powers, and as the arterial structure, on the other hand, has naturally considerable power of resistance to sloughing, the entire sac may die without much danger of the artery. Partial death of the sac, so far from producing a cure, has very often been the cause of fatal hemorrhage.

Another way in which a natural cure may be accomplished is, when the sac, as it increases in size, is pressed upon by something through which it cannot readily pass, and is itself pressed against the trunk of the artery on which it is formed and obstructs the circulation in it; less blood gets from day to day into the sac; and, finally, this is so filled with coagulated blood, that no more can enter it, and the disease gets well. But, unfortunately, these natural cures are not sufficiently common to give us much expectation of its happening in any one particular case, and therefore it would be wrong to withhold the resources of surgery, in the hope that nature might in time render them unnecessary.

When I first entered on practice in Dublin, there was but one way

of attempting the cure of popliteal aneurism, and that was by amputation ; and there are still cases where the common operation of the present day would not answer, and where all we could do would be to amputate—for example, we find that the tumour has gradually worked its way into the knee joint, destroying all the structures in its path, and causing disease of the bones themselves. Here, if we take up the femoral artery, the patient may get on well for about three weeks, but he will afterwards decline, and will gradually sink under the diseased knee. After twenty-one days, pain will come on in the tumour, and the case eventually go on as I say. Sometimes an aneurism which has existed five or six months, and has attained, what you would call the regular size of an aneurism of that time, undergoes a change suddenly ; from some exertion or other cause, it becomes in one night diffused through the limb, and here nothing but amputation will do. The operation of amputation for aneurism is by no means one from which you should entertain very sanguine hopes of success : the majority end unfavourably, and this, mind you, when the operation was performed formerly in much more favourable cases than those which we deemed it advisable to amputate for at the present day. Pressure may cure an aneurism, but if we make the pressure on the aneurismal tumour itself, it must be extremely light ; strong compression on the tumour, instead of diminishing the flow of blood through the sac, will in fact only invite or provoke a greater quantity to the part. Now, if the pressure is to be made on the *artery* going to the aneurism, the degree of compression must be directly the reverse of this. Whenever an artery is compressed so strongly as to stimulate it, without the pressure being strong enough to bring the sides of the vessel quite into contact, there will be a proportionate effort of the artery to overcome this. This was exemplified in the old practice of keeping a compress along the entire course of the artery, with the view of enlarging the anastomosing vessels, and diminishing the force of the blood going to the aneurism ; the effect of this practice generally was secondary hemorrhage. If you resolve to try compression on the tumour itself, the best way you can manage it is by binding a bit of sponge on it with sticking plaster. The pressure must be so light on it that you would be inclined to think it could have no beneficial effect, yet this *will* sometimes succeed. If the pressure be applied to the artery going to the tumour, it must be so strong as to cause the sides of the artery to adhere.\*

\* Early last year I brought the subject of the treatment of aneurism by pressure before the Surgical Society of Ireland. One of the cases I mentioned on that occasion had been under my care several years ago, and is, I conceive, extremely interesting on account of the success attending the application of compression, under every disadvantage that I could suppose possible to attend an aneurism. The patient was an habitual drunkard — had had another aneurism previously of such a nature that the man's life could only be saved by amputation. The vessel I acted on was of large size — was most unfavourably situated for the application of steady compression — and the compress had to be fixed almost immediately over where the vessel gave off a branch nearly, if not quite as large as itself —

Some objections have been raised to the undertaking the operation for aneurism, arising from the condition of the patient or the local affection, which do not appear to me grounded on sufficient facts, and, without such a foundation, must not be too rigidly received as valid; for instance, old age is given as an objection to the operation; but I do not think you should leave a man to his fate on this account, although, no doubt, it is not the most favourable state for it. But there is an objection of much greater consequence against attempting the operation — what you might properly call an aneurismal diathesis. Now, how are you to know that a patient has this aneurismal diathesis? Your success in the investigation will greatly depend on circumstances. If the patient has been lying in bed for two or three days, you will not be able to discover a pulsation in any part of his body; but if you rouse him and make him get up, you may feel a pulsation in some other artery dilated into an aneurism. Should there be no external appearance of this kind, you must examine the state of the cavities. Well, you lay your hand on his chest, and you will feel nothing — will that satisfy you? No. You have heard me say that in the thorax, or even in the abdomen, the cavity of which is as yielding as you could desire, an aneurism may exist, and yet no pulsation be felt; but although this may be so in the case before you, you will, perhaps, find he has a difficulty in his breathing: this dyspnœa from an aneurism in the thorax, is, in my opinion, unlike any other dyspnœa in its character; it is a kind of panting, like that of a sheep over-driven. When you find the arteries of the cavities, and the superficial ones, give no adverse indications, you may proceed to operate. You must not forget one fact, that in any operation you may be called on to perform on arteries, you may not, and probably will not, have the guide of their pulsation to lead you to their exact situation. When an artery is laid bare, even one so large as the femoral, and lying so superficial as that does, it will not pulsate, and you must trust entirely to your anatomical knowledge when you propose putting a ligature on a sound vessel, where its natural relations are undisturbed, as is usually the case in operations for aneurism. As I before observed, we operate at some distance from a spontaneous aneurism, for the greater security against any disease in the coats of the artery influencing the success of the operation.

### LECTURE XXIII:

*Aneurism (continued).*—Operations.—Aneurismal Varix—Varicose Aneurism.

If a patient labouring under aneurism will not submit to an opera-

namely, the femoral artery, where it passes over the brim of the pelvis. The particulars of this, and one or two others bearing on the same point, may be found in the Medical Press for 26th April, 1843, among the proceedings of the society. Two or three other cases of the successful treatment of aneurism, by pressure, have been since reported from the Dublin Hospitals.—*Ed. of Lect.*

tion, is there any chance of benefiting him by other means — can anything be done to cure his disease, or to check its increase? We have seen that this affection does sometimes get well without surgical aid, and cases are recorded of success from other means than operation, and therefore we leave nothing undone that might give hopes of success. We should enjoin perfect rest for a considerable time, low diet, cold applications constantly to the tumour, and the use of digitalis. We can scarcely do more than this.

The place where the femoral artery is to be tied in popliteal aneurism is where it is about to be crossed by the sartorius muscle—a spot which, however, has no external mark by which you can be guided. You will best discover the line of the muscle itself by rotating the thigh a little inwards. Mr. Hunter, who was the first that conceived and established the principle of this operation, tied the artery after it was crossed by the sartorius; but the exact spot does not seem to me very clear. Now, besides the greater difficulty of coming at the artery when covered by the sartorius, suppuration and confinement of the matter will be more likely to occur here, and even concealment of bleeding, the occurrence of which it would be important to know about. The place where it is now generally tied, is where Scarpa advises — namely, the spot in which the artery touches the sartorius; and your incision through the skin, superficial fascia and fascia lata, should extend three inches above this point. There is often a great error made even in the first incision, and that is in cutting too much inwards, by which the saphena vein is often wounded. This would be not only dangerous in itself, but when it occurs there is a great deal of confusion, for when an accident happens in the beginning of an operation, everything afterwards appears to go wrong. You will meet some lymphatic glands in your way — just cut through them, it will do no harm; it is hardly necessary to make the skin tense for your first incision, but, if you think it necessary, do it yourself with your fingers divaricated, cutting between them; do not let an assistant make tense the skin for you, for by pulling it a little on one side or the other, he might make you change the line of your incision. Your first incision should be between two and three inches long, and that through the fascia of the same length, to prevent the formation of abscess afterwards under it. You will meet next the sartorius muscle, and this you will have to draw a little towards the iliac side out of your way, with a broad retractor. When you get to the sheath of the vessel, just open it like the other parts, or if you distrust your hand, make an opening, with the blade of the knife held horizontally, introduce a director, and slit it upwards and downwards. After opening the sheath, you still have not the artery sufficiently exposed, and must take the side of the sheath in a forceps and clear the artery of it, otherwise you will not be able to get a blunt needle round it, and your efforts to do so will disturb the vessel. These trials with the needle, to overcome what should have been previously removed — namely, the cellular substance connecting the artery to its sheath, may cause you to run the needle into the femoral vein; this would

excite inflammation of the vein, which would be certain death. If you had encountered the accident of wounding this vein you might not be conscious of what had happened until you were *withdrawing* the aneurismal needle, when a great gush of blood would inform you of what you had done. You know that at this spot the vein lies behind the artery to its inner side, and is often not seen at all, but it will be most easily avoided by introducing the aneurismal needle from within outwards. When you are about to withdraw the needle, place your finger on the artery to prevent its being raised from its bed, or disturbed unnecessarily in any way. A round ligature of three silk threads will be quite sufficient for the femoral artery. Some advise you to put two ligatures on the vessel and to divide it between them. I think when you can relax the limb one ligature is always enough, but if you wish to apply two, take particular care to leave enough of the artery between them, to avoid all danger of the ligatures slipping off, at least half an inch of it. An accident of this kind occurred in London which was the reason for introducing a contrivance to prevent such a thing happening again, and as bad a practice it was, as ever was conceived. It is this — you take up the ends of the divided artery and pass with a fine needle the ends of the ligature through them. Now, this causes such a disturbance of the artery as will be likely to be extremely injurious; but the practice is quite useless. It is absurd to say that it was the force of the blood that drove off the ligature, for if this force was sufficient to push it off the upper end, it surely could not do so from the lower or distal end of the artery, which happened to be the case in the instance related. The fact is, when a ligature slips off from the end of an artery, it is always the surgeon's fault. When you apply two ligatures, take care that they do not cross each other under the artery. If pulsation should return in a slight degree in the aneurismal tumour after the operation, you need be under no apprehension — you know that immediately after, there had been no pulsation, and its return must therefore arise from the anastomosing arteries, and which you neither can or need prevent; just apply a light compress on the tumour, and all will do very well. Bell advises you to clear the artery *very* well before attempting to pass a ligature round it, but you might carry this clearing too far. When I began to practise, I once operated for popliteal aneurism, and a more promising case I never saw. I took great pains to clear the artery from its sheath, and did it very much to my own satisfaction; but in twenty-four hours afterwards there was secondary hemorrhage, a thing I believe unprecedented in such a case, but which determined me never again to denude the artery too much. You must make a way for the needle, and that is all you require. The great danger in the operation for popliteal aneurism is secondary hemorrhage, you are therefore anxious to get the wound you have made to heal as speedily as possible by the first intention; you cut off one end of the ligature close to the knot, and leave the other hanging out of the wound; you draw the lips of the incision together, and retain them by strips of adhesive

plaster, put the limb in an easy relaxed position, and in about from the fourteenth to the twentieth day the ligature will probably come away. This is the time that you are to watch for secondary bleeding : sometimes it is trifling in quantity, but it may recur two or three times, and yet no serious consequence follows. As disease is much more frequent in large than in small arteries, spontaneous aneurism, as might be expected, is also more frequent in the larger sized vessels.

Gangrene is sometimes a consequence of the operation, and we are told it is an *immediate* one when it does happen — that is, occurring on the second or third day; but I have known it more than once to supervene a fortnight after, and in one case gangrene did not take place until six weeks after the operation. The first symptom that makes one apprehend gangrene after the operation for popliteal aneurism is a coldness the patient feels in the limb. You examine it, and you find it pale, and its temperature lower than the other limb. Here you direct it to be wrapt in warm flannels, and every attention to be given to the maintenance of its heat. Sometimes it begins in a black spot, usually about the instep ; there may be one or two such spots ; if there be but one, the patient may recover ; if there be two, however, or three, I believe he will not.

When the aneurism is high up in the femoral artery, and that you do not think it judicious to take it up below Poupart's ligament, or have not room to do so, you must then take up the iliac artery, and you will find it a less troublesome operation than taking up the femoral artery itself. You will be surprised to find how much it is within your grasp, as soon as the superficial parts are cut through. I took up the iliac artery under circumstances where there was nothing else left for me to do, and before such an operation had been recommended. The aneurism was too near Poupart's ligament to put a ligature round the femoral artery, so I cut through the ligament, and tied the iliac artery a little above it. As it is advisable to prevent suppuration in the wound you have made to get at an artery to tie it, lest the vessel itself should take on the suppurative inflammation, you diminish the chances of such an occurrence by cutting off one end of your ligature close to the knot, but other modes of operating have been proposed for the greater safety of the artery. Acting on the principles he conceived, Jones tightened a ligature on a large artery, and when he felt that he had divided the internal and middle coats, he immediately removed the ligature, and the vessel became impervious. Some recommend tying the vessel, and in twenty-four hours afterwards cutting out the ligature, but you will find you could not remove the ligature at this period, for lymph has been found round it, and if you wait longer to give it time to separate, it will have become faster, up to the time it would have been expected to come away, if not meddled with. You cannot remove it before, without disturbing the artery, and very much increasing the danger of the operation ; nevertheless it has succeeded. Mr. Crampton invented a contrivance for the obliteration of arteries which he called a *Presse Artère* ; the first time it was used it succeeded completely ;

the second time it was used it was applied by Mr. Dease, and here it likewise succeeded, and the man on whom it was applied rewarded him by making a great improvement in its mechanism. He adapted a screw to it, by which the degree of pressure necessary to be given could be regulated easily. In the cases where the *presse artere* failed a gangrenous spot was found in the artery, on examination, exactly of the size and shape of the part of the instrument which had pressed the vessel. It has been recommended to tie the artery, cut off both ends of the ligature, and heal the wound of the parts over the vessel, by the first intention, and it is said the ligature gives little or no trouble afterwards, but quietly makes its way out, sometimes even a month after the operation. Mr. Horner of Philadelphia, invented ligatures expressly for this purpose, and had them made of kid-skin, conceiving that the more animalized they were, the less they would disturb the surrounding parts as an extraneous body. When he was in Dublin he had the kindness to give me some of them. It unfortunately happened that some accident occurred in every case that I used them, so that I could not fairly see the issue. Some of these cases were the patients of other surgeons, who afterwards told me they had succeeded, but I should like to see an instance of their success myself before I would recommend the practice.

There is one mistake that often confuses a young man in his first operation on arteries; accustomed to dissect arteries when full of injection, he acquires insensibly a wrong notion as to the proper or natural size of them. Now, in the living body, you will find these vessels much smaller than they would appear in the dissecting room. In clearing an artery to pass a ligature round it, keep the back of the knife as much turned to it as you can. When you use two ligatures, *e. g.*, on the femoral artery for popliteal aneurism, you tighten one first, and get your assistant to feel in the ham if the pulsation has stopped in the tumour, and be certain of this before you tie the other part, and divide the artery between the two. The reason of adopting *two* ligatures for an artery under circumstances such as we have been speaking of, was fancying that it was putting the artery in the same favourable condition in which it would be if it had been cut and tied in amputation, and to avoid any traction of the vessel, but it would not be at all in the same condition; and as to the second motive a judicious position of the limb after the operation, and which never should be neglected, whether you use one or two ligatures, will secure all the advantages that any other plan could accomplish. When the patient is put to bed, you place the thigh a little flexed on the pelvis, and you have the whole limb enveloped in flannel; the ligature will come away some time between the fourteenth and twentieth day, and then it is you are to be watchful for any bleeding from the wound; the tumour grows smaller and harder from day to day, and the patient is discharged with, perhaps, only a small hard knot remaining in the ham. For three or four weeks you should be guarded in your prognosis, for gangrene may set in after everything had been apparently going on right so long.

There are, you are aware, two principal methods adopted for taking up the external iliac artery; one described by Mr. Abernethy, and the other by Sir A. Cooper. Whichever of those you choose, you must cut the tendon of the external oblique muscle completely down to Poupart's ligament. Should this not be done, the opening in it will be too small, and will confuse the operator very much in the subsequent stages. Care must be taken when dividing the internal oblique and transversalis muscles to get the director fairly under their margins, for if you leave a fasciculus of their fibres undivided at first, you will have to make a second incision. When you cut through the transversalis fascia, you see the peritoneum protruding and retiring with the patient's respiration; it is not of much consequence, but, as it is not mentioned in books, it might confuse you for a moment, if you did not expect it. When you do all this, and push aside the peritoneum, you will, as I have said, be astonished how much you will have the artery in your power. The iliac artery is bound down by a fascia, in which you must make an aperture before you can pass the blunt needle under it; you must just make the smallest hole in it with a sharp-pointed probe, or anything else near you, and then pass a single ligature round it; you then relax the limb, when the ligature is secured and the wound dressed, and keep it so until the ligature comes away.

Having said so much on the general principles that should guide you in the treatment of aneurism, it will not be necessary to enter further into details. I should wish, however, to mention that an artery which you might find it necessary to take up for the cure of aneurism is sometimes so deeply situated that your great difficulty will be to pass a ligature round it; for instance, the subclavian artery is sometimes to be tied at the bottom of a deep narrow cavity, where you cannot see it, as for axillary aneurism, perhaps, in which the shoulder is very much raised and will not admit of being depressed; in some of these you will try several of those instruments invented from time to time to meet such an exigency, and in one case, one of these will succeed, but perhaps fail in others apparently nearly alike.\* When an artery is circumstanced in this way, there will often be much difficulty in drawing the ligature and tying it with sufficient tightness, and at the same time without disturbing the vessel or raising it from its bed — a thing that should always be most sedulously avoided. Every artery that you may have to tie, will have difficulties peculiar to it, but they are for the most part anatomical difficulties, and a correct knowledge of those will be sufficient to give you courage to undertake operations on them, and afford you the best means to meet contingencies.

\* Surgeon Trant of this city, has invented a very ingenious instrument for passing a ligature round a deeply seated artery, and bringing both ends out of the wound by its own action; I have seen it employed on some cases with facility and success, where I think the common aneurismal needle would have given much trouble to the operator, and disturbance to the artery. For a description and drawing of this instrument, see *Medical Press*, vol. ii., for 1839, p. 309.—*Ed. of Lect.*

To expose the right subclavian in the first stage of its course will seldom be found very difficult by a good anatomist and surgeon, who does not suffer himself to be flurried, and whose hand is steady; but a similar operation on the left side will be out of the question, from its great depth, its direct course out of the chest, the suddenness with which it turns over the first rib and behind the scalenus muscle, but chiefly from the number of important parts which closely accompany, and run parallel to, this division of the left subclavian artery. The artery has been tied where it crosses the first rib, and of course the anterior scalenus had to be separated from its attachment. Now, the phrenic nerve is so connected with this muscle that there is great risk of wounding it, and I hardly think it would be advisable to undertake an operation where any risk of the kind existed. I do not mean to say that a division or other injury of the phrenic nerve *must* follow the separation of the scalenus muscle from its inferior attachment, but if it was only a possible event, much less a probable one, the danger would be enough to make us hesitate about it. There is no difficulty in putting a ligature on the subclavian artery after it has passed the scaleni muscles. When you make the necessary incisions to come on the vessel, there is one certain guide, and but one, to lead you to it. You recollect the brachial plexus of nerves is above and behind the artery, and the lowest branch of this plexus, or the one above that again, might readily enough be mistaken for the vessel itself, and tied instead of it perhaps. If you slide your finger on the surface of the scalenus muscle, at its acromial edge, it will lead you directly to the artery and away from everything else that might be confounded with it.

## ANEURISMAL VARIX.

We shall now proceed to consider a peculiar condition of a wounded artery in which the blood escapes, not into the surrounding cellular substance, there to form a distinct close sac, or circumscribed aneurism, nor yet to be diffused through the general cellular membrane of the limb, but to enter the canal of a vein which had been transfixed, and through which the artery had been wounded. This generally occurs in venesection at the bend of the arm, where the brachial artery lies directly behind the median basilic vein, and the usual place where that vein is opened with a lancet is in contact with the artery. The semilunar fascia of the biceps muscle, although interposed between these vessels immediately below the level of the condyles of the humerus, gives the artery no protection for about a quarter of an inch at the usual place for opening the vein for the detraction of blood, and therefore they can become consolidated and a direct communication established between their canals. This disease has received the name of *aneurismal varix* — that is, where the opening between the artery and vein is *direct*, and the vessels, at the situation of the wound, in contact with each other. There is a variety in the consequences of this accident called *varicose aneu-*

*rism* — that is, where the blood insinuates itself for a short distance into the cellular substance between the artery and vein, around the corresponding wounds in each, and the formation of a little aneurismal sac, with openings into both vessels, and of course transmitting the blood from one into the other.

After this accident occurs the wound in the integuments, and the corresponding one in the vein, may heal readily; a part of the blood transmitted by the brachial artery, instead of taking its destined course to the forearm, passes into the transfixing vein, and, following the course of its blood, is returned to the heart. In such a case there is a pulsating tumour formed, but its pulsation is so different from that of a true aneurism that the nature of the injury can be distinguished with the greatest ease; there is a thrilling or whizzing sensation not easy to describe, but which if once felt, can never be forgotten; it is as if you felt the effort of a fluid forced through a narrow orifice, and communicating a vibratory motion to the parts, so that if one's eyes were shut, and the hand laid over the part, it would be recognised at once. It is said that the vein under these circumstances is always varicose, but you will see many cases of aneurismal varix where the vein is not the least varicose. I have seen a case where the tumour had this whizzing feel, and where the vein could not even be seen, but if you felt the vein along its course in the arm, you could feel the thrill to a considerable distance; if you applied a piece of metal, or the stethoscope along the vein in the arm, you could distinctly recognise this peculiar feel and sound, so that it is not at all confined to the tumour. I saw a curious case once where the disease existed without any tumour at all. It was the case of an officer who had been engaged in a duel, and who, on leaving the field, was obliged to conceal himself; he was bled that evening, and had to be bled in the dark. The army surgeons, and the army medical boards in London and Paris, considered it a case of aneurismal varix, and treated it accordingly. I saw him, and am confident they were right; but the most curious part of the business was this — the basilic vein was not affected, but the cephalic had the whizzing. Well, all he complained of was that he could not play rackets as he used to do, and I advised him not to attempt it. He did, however, play them, and hard games too, and at length he got a severe pain in his arm. I saw him in about a month afterwards, and his disease was gone — the inflammation that had been excited by the exercise had cured him. How the blood had got from the brachial artery into the cephalic vein I do not know, except it was some irregularity in the vessels. After this injury has existed for a while, the artery below the wound in it becomes diminished in capacity, but above the injury it is often found larger than the corresponding part of the brachial artery of the other arm.\*

\* I saw, several years ago, a very singular case of enlarged veins in Jervis-street Hospital, under the care of Mr. Adams, and afterwards transferred to Dr. O'Beirne. The enormous tumour of varicose veins, as it was supposed, occupied

Sometimes, instead of a direct communication between the artery and vein, such as I have described, a little blood makes its way between these vessels into the cellular membrane connecting them naturally to each other, and the consequence is the formation of a true aneurismal sac, having the peculiarity of two openings — one connected with the artery, and the other with the vein. As this does not interfere with the freedom of passage of the blood from one vessel into the other, there is not the same tendency to enlargement and ultimate bursting of this sac as there is in ordinary aneurisms. This variety, which is called *varicose aneurism*, occurs in fat people, where the vein and artery are naturally separated a little from each other, or probably from some accidental disturbance of the relative positions of the vessels after the occurrence. The blame of transfixing the vein and wounding the artery is generally left on the patient, but mostly unjustly, for his impulse at the moment of the puncture is not to thrust his arm forwards against the lancet, but just the reverse. I do not know any practical difference between aneurismal varix and varicose aneurism. In either, the patient complains little, or not at all, of any pain or uneasiness on account of it; and, therefore, as far as practice is concerned, there is very little in general to be done; in fact, an operation is entirely unnecessary in either case, for the only inconvenience felt from it is that there is not as much power or freedom in the use of the limb as there was before the accident. Now, this would be insufficient to authorise an operation in most cases. I have, however, operated in some of them, and have seen the operation done by others very often, with success, and never saw an instance where it was necessary to lay open the aneurismal sac, as some advise, nor of course to apply more than one ligature, and that round the brachial trunk above, and close to the tumour. You will bear in mind that aneurism from a *wounded* artery differs in this essential particular from *spontaneous* aneurism, that the vessel is sound in the former, and almost always diseased in the latter. In the first, we can tie the artery close to the opening in it, by which we insure a more free anastomosis; in the latter, we must tie the vessel at some distance, to insure a sound part for the application of the ligature.

the posterior part of the thigh, extended downwards to the calf of the leg, and projected outwards and backwards several inches; it scarcely impeded him in walking, or interfered with his usual occupation, which was that of a field labourer. There were four or five venous trunks, fully as large as the vena cava, about the knee, and numerous others, as large as the vena porta: but the most remarkable circumstance connected with the case was, that every one of these veins had the *thrill*, or jarring feel characteristic of aneurismal varix; beyond this, however, there was nothing to warrant one in supposing that these veins communicated with an artery. A cast of this very remarkable case was, I believe, presented by Dr. O'Beirne to the College of Surgeons. The patient was a man about forty-five years of age.—*Ed. of Lect.*

## LECTURE XXIV.

Aneurism by anastomosis — Cancer — Cutaneous cancer — Diseases resembling — Scirrhus — Diseases resembling.

## ANEURISM BY ANASTOMOSIS.

THERE is still one species of aneurism I have not mentioned, called *aneurism by anastomosis*. This disease is somewhat congenital; it appears under two very different circumstances — in the one, there is tumour and pulsation synchronous with that of the arteries; the skin is of a bluish colour; it is very soft, and occasionally is met with having the feel as if it was a thin capsule filled with worms; it is often seen even of large size, without throbbing or pulsation, but anger, or any physical exertion, will swell it out much beyond its accustomed dimensions, and it will even sometimes burst and discharge a great deal of blood in a few seconds. It sometimes is indolent in its nature and progress; at other times it will be the reverse. If the skin over one of those tumours be abraded, or if a puncture be indiscreetly made into it, it bleeds with most extraordinary fury, and the hemorrhage is extremely difficult to suppress. Although a similar structure may be found in some of the internal parts of the body, yet their seat is more generally under the skin, or in the substance of the skin; and the parts about the face and neck appear more generally attacked than others. This last observation may not be quite correct, for as the disease may exist long, or during the patient's life, without giving him any uneasiness, few will be likely, under such circumstances, to apply for surgical aid, or undergo a painful process unless it be in a situation to cause deformity, particularly in females, who, by the by, appear to me rather more subject to the complaint than the male sex. Although they are soft to the touch, and the skin over them perhaps a little corrugated when no excitement is present, yet if any takes place, or that they are in any degree irritated, they will become greatly swollen and tense. There seems no disposition in these tumours to grow well of themselves; they either remain for years stationary, or continue to enlarge, often to a great size, both in circumference and prominence, and may carry off the patient by hemorrhage, or taking some other form.

In the second variety there is no tumour or pulsation, nor will it bleed on being punctured; and besides these differences, there is another very strong one — namely, that we can cure it without an operation; if it ulcerates, the ulcer is even indolent, and the original colour of the part disappears. This second species is sometimes so large that an operation for its removal, if even necessary on other accounts, could not be practised; I have seen the whole side of the buttock affected, or the side of the face or head. Where it is of moderate size it can be removed by blistering repeatedly; of course if it be of very great extent, you will judge how far it may be blistered with impunity.

Respecting the first kind, the case is to be treated in a totally different manner. Some of them have been cured by tying the arteries going to it, but I have seen this fail, although indeed it for a time relieved the disease; but all the bad symptoms returned.\* The only certain cure is to remove the entire tumour if possible. Some of these cases of aneurism by anastomosis remain for a long period without any alteration. I have watched one for, I am sure, twenty years without its having undergone the smallest alteration of size or condition. Bell is right in saying that you must not cut *into* one of these tumours, but cut it out, and that without leaving a bit of it behind; and yet I once assisted an old surgeon, whose sight was bad, to remove one of these, and he left a bit of it behind as large as a black currant, yet the disease did not return. The quantity of blood poured out on one of these being wounded, is, as I before said, astonishing, but if you come to examine one of them, suppose no bigger than a walnut, you will find two or three arteries going to it, each as large as the radial artery. There is something peculiar in these arteries, something different from ordinary arteries going to a normal part; for when divided they never require a ligature to repress hemorrhage. A slight pressure with the point of your finger on the vessel, for a couple of minutes, effectually stops the bleeding from them permanently. In removing one of these tumours, therefore, you need never wait to take up these vessels. There is one rule you must observe in removing this disease with the knife — cut it out with the utmost rapidity. Two or three instances have occurred in London, where the patients actually died under the operation, and I cannot conceive any cause there could be for such an event, except the want of the necessary celerity in the surgeon during the operation. Pressure has been employed for the cure of these cases, and the proceeding has, it is said, succeeded in some instances where the tumour was small and in a favourable situation; it must be made firmly, and the pain caused by it in consequence often obliges the surgeon to remove it before any advantage could have been gained. In fact, the knife alone can be relied on confidentially for the removal of this form of aneurism by anastomosis, and its employment is not unattended with danger in young subjects, or in a large tumour, unless the operation be performed with celerity and care.

## CANCER.

Having now concluded what I had to say on the subject of wounds,

\* I saw the late Surgeon Wallace tie the external carotid artery for one of those erectile tumours which extended from about midway between the zygoma and angle of the jaw downwards and forwards into the submaxillary space, and across the lower half of the masseter muscle nearly to the chin, in a healthy young girl: the operation effected nothing whatever. The late Mr. Hallahan and myself tied two large vessels going to a small tumour of this description which diminished it by one-half, but in six months there was no farther improvement.—  
*Ed. of Lect.*

I will proceed to consider surgical diseases, and shall begin with *cancer*. I must, in the first instance, premise that I shall have to speak of many diseases not cancer, but which have, from time to time, been called cancer, and confounded with it. There are two states in which cancer may exist — one, ulceration; the other called scirrhus, where, from beginning to end, there may be no ulcer at all, although scirrhus will always have the tendency to ulcerate — will always end in ulceration if the patient lives long enough. Nevertheless, patients may and do die of scirrhus without any suppuration, ulceration, or of course any absorption of cancerous matter ever having taken place, or even the skin over it being in the least discoloured, but this is not the usual course, for it seldom terminates fatally before it is ulcerated. The first stage of cancer will differ in its appearance according to the structure of the part where it begins — that is, whether it begins in a glandular part or in the skin or mucous membranes; but there are distinctive characters assumed by the disease, sooner or later, that are common to it every where. The *cutaneous cancer* may be met in any part of the body, but there are certain situations where it is more frequently met with than in others, as in the lip, the nipple of the breast, the scrotum, &c., but this form of the disease is, on the whole, less common than the scirrhus or glandular form. Cancer is rather a disease of advanced life, but there are some parts of the body, and perhaps some forms of it, in which it is met at earlier periods than others comparatively. When in the skin, its first appearance has not an uniform character, it sometimes comes on after the meridian of life in the form of a wart which remains a few years stationary. Well, if this wart be on the face, for instance, the patient perhaps picks the wart off, or if it is on the chin, shaves it off, a new one comes on the part, harder to the feel than was the first; this is, in its turn, picked off, and another again appears in the same place, and so it goes on. The interval between the falling off of one, and the formation of the next, grows shorter and shorter every time; at last the part becomes hard and ulcerated. This wart may arise in any part of the body. I never knew it to come on in this form under the meridian of life, except in one instance, where I think I saw it at an earlier period on the prepuce. Cutaneous cancer commences in another form — that of a fissure, as in the lip, which is generally at first mistaken for a cold, and some ointment or other application is put to it. After a time, however, it becomes puckered in appearance, and after this ulceration very soon follows. The edges of this fissure, if cancer, are very hard; if it should be a common fissure without any thing malignant in it, and some people are very subject to such, it will generally heal up in two or three days by frequently rubbing it with oil, but not so if it is cancer. Caustic applied to a venereal ulcer of the lip will induce it sometimes to heal, and so far it might be confounded with a cancerous ulcer, but that their seat about the mouth is never the same, at least at the commencement. The upper lip is subject to an ulceration of a peculiar kind; it begins by a scab on the lip, or perhaps

on the nose or cheek; when these fall off, the part discharges a viscid, greenish, tenacious matter at the early periods; generally the ulceration spreads rapidly, and in three months it will have destroyed the lip, nose, and part of the cheek; if it is not meddled with it will heal up spontaneously, after destroying a certain quantity of the parts it had invaded. But there is a strong line of distinction between this and cancer; it begins at an earlier period of life than cancer does; it wears itself out, which cancer never does; and yet there has not been discovered any mode of treatment, local or general, that can be in the least depended on for arresting its progress. I saw a boy of the name of Brien in the House of Industry, about fourteen years of age, who had suffered from this, and notwithstanding every attention that was paid him, and the trial of every thing that promised the least hope of success, it ate almost the whole front of his face away.

This form of cutaneous cancer I have described in the lip, occurs sometimes in the breast, usually at the nipple, and is then accompanied with a coffee-coloured discharge, or the oozing of a little blood from it, and this is one of the worst forms in which it begins; so closely does it resemble another disease (*fungus hæmatodes*) at this period, that, for some time, one cannot well say which it will turn out to be. One of the worst possible cases of cancer you can find is, where, in the beginning, the nipple, which should be prominent, becomes retracted, and where every motion of the arm causes a feeling of dragging at the nipple. Cancer of the lip may begin in a fissure, as I have said, or in a wart or a scab; there are more instances of its occurring in early life in this situation than in the breast. It is a curious circumstance that cancer does not originate ever in the upper lip; it may begin sometimes, although not often, at the angle of the mouth, and then extend from that to the upper lip, while a venereal ulcer, with which it might sometimes be confounded, as constantly begins in the upper lip. There are other distinctions between these two diseases about the mouth, which we shall consider on another occasion. In cancer of the lip it is a remarkable fact that the older the patient is on whom you operate, the greater will be the chance of there being no relapse. In nearly half of those cases operated on, it is true, a relapse does follow, but it is often owing to the previous treatment, such as the application of caustics, arsenic, &c., and these applications are quite fair to make a trial of, for arsenic and corrosive sublimate *frequently* do cure it in this situation. In old men there is sometimes a condition of the skin in which there is a number of dark-coloured scales on the face, of the size of the point of the finger; these scales fall off, and others come in their place, each succeeding crop being thicker than the last, and at length an ulcer makes its appearance, and this is called cancer, but it is not cancer at all. This sometimes rests on the nose, and at length scoops a piece out of it; it may exist for years. The surface of the ulcer formed in this disease is perfectly glazed and polished, without the slightest appearance of a granulation on any part of it, and its margins are

thin and hard. A man may die of this disease, but it is not cancer nevertheless. The cutaneous form of cancer is milder in its symptoms than the glandular.

*Scirrhus* of the female breast never by any chance occurs before the age of thirty-five or forty years. We see some of these cases about the age of forty-five, or from that to the sixtieth year—from fifty to fifty-five is perhaps the most common age. *Scirrhus* in the breast often comes on without giving any notice of its approach. In passing the hand over the breast, the patient feels perhaps a lump, which, in the beginning, is indolent, and gives her no pain or uneasiness of any kind. If you press it at this time it gives no pain, nor has it any attachments either to the parts on which it lies, or to the parts which cover it. It is smooth on the surface, but even at the earliest period there is an extraordinary hardness in it, and if it is in a dependent part, where you can poise it on your hand, you are sensible that it is heavier than other tumours. As it becomes large its surface gets knotty and uneven; and as it grows still larger it fixes itself by adhesions, either to the parts behind it, or to the skin; but much as one reads of the attachment of a *scirrhus* tumour of the breast to the pectoral muscle, I do not think they are adherent to that muscle in one case out of five hundred. In almost every case where such an adhesion has taken place, the disease will turn out to be fungus hæmatodes. When it forms these adhesions, then it is that the patient feels first those peculiar stings called lancinating pains, and which she describes as if a needle or lancet was thrust into it. At first a sting of this kind comes in it but once in five or six days, and is but little noticed, and soon forgotten. It is a curious circumstance that while you are examining the tumour, you give no pain, but generally in some short time after you handle it the pains are felt, and are more severe than at other times. When the *scirrhus* tumour becomes adherent to the skin it seems to become smaller, or to have receded from the surface, in which there is rather a depression than tumefaction, from the removal of the adipose substance, by absorption, that had until then been interposed between the skin and the tumour; the skin now has perhaps for the first time altered its natural colour and appearance; it becomes of an unhealthy red hue, becomes rough or tuberculated, and it is generally at this period that lymphatic glands in the neighbourhood become enlarged and painful; the skin has evidently partaken of the disease, for it is dense and brawny at the part; sometimes it seems as if about to suppurate, but it quickly opens into an ulcer. Long before this, however, the glands in the axilla become enlarged; you may find one or two between the ribs, or under the border of the pectoral muscle, or in the pectoral muscle, or above the clavicle, or at the side of the sternum; wherever you meet them they are very hard to the feel.

Of all the forms of cancer met with, the very worst is that in which the glands of the axilla exhibit the first appearances of the disease. They are by far the worst cases met with, where the breast becomes affected *after* the axillary glands; the mildest cases

are those which originate or come on after a hurt ; but you cannot be certain, from the accounts women give, as to hurts they may get in their breasts. They are fond of playing with children, and they may think they get a kick from the child. There are few of them who will not recollect some little bruise or hurt they one time or other received, and any of these may or may not have been the immediate cause of the disease.

Now, there are some affections of the female breast liable to be mistaken for cancer, and it is of the greatest moment to discriminate between them. Many a breast has been amputated without any necessity, from want of taking proper care to distinguish these cases from true cancer. A woman has had a relative — either an aunt or a sister, suppose, who died of cancer in the breast, and if she gets any tumour in this part, she will think it must, of course, be cancer too. Women nursing are subject to a very extraordinary affection of the breast—it is this : the breast swells, soon becomes painful, and some time after this, is felt hard, but not of the stony hardness of scirrhus, and unaccompanied with the lancinating pains ; this tumour will be found to consist of a sac, containing a fluid, in every particular resembling milk. A lady, the sister of a medical man, came to me with a tumour of this kind, and on examination, and she being young, I was satisfied it was not cancer ; I made a puncture into it with a lancet, and let out a little of this fluid, which I believe to be milk, and she got well rapidly, and without any return, although she had the complaint twelve months before I saw her. Sometimes hydatids form in the female breast, and cause tumours as hard as true scirrhus ones, but they can be cured by pressure. How are you to distinguish between hydatids and scirrhus ? When the tumour is not uneven on its surface it is probably not scirrhus, but even as regards its rugged or unequal surface, we are not always able to judge : for if two or three of these hydatid tumours, which, in some of their characters, are like scirrhus, should lie close to each other, we might confound them as one irregular tumour ; but if we can distinguish them as separate tumours lying in the neighbourhood of each other without being joined, the case is most certainly not cancer ; the hydatid tumour is not so large as the scirrhus tumour for the time it existed. We are able to trace in almost every affection of the mamma, some connection, directly or indirectly, with the uterine functions, and that the great events in that organ, such as the first menstruation in youth, its cessation in age, or pregnancy, or its condition during the suckling of the infant, are frequently attended with derangements or disease of the mamma, in a great degree peculiar to the conditions of the uterus alluded to. Now, there is one affection of the breast which often occurs to young girls at the commencement of menstruation, but which may occur at any period until that discharge ceases entirely in old age, that might be mistaken for scirrhus. Some pain is experienced in the breast, and a tumour is perceived, generally about the inferior margin of the breast — it is a small glandular tumour. When you feel it the patient

winces; when she suffers much uneasiness of mind from any cause, the swelling becomes more painful; she finds it impossible to wear her clothes light, or to suffer any pressure on it; the pain increases, and the tumour becomes larger at each period, just as she is going to menstruate; it becomes easier when the discharge ceases, and remains better until the next period. When these persons get married and become mothers, the affection generally disappears; but this is not always the case, for I have seen it continue in a female who was a mother. There is no malignancy whatever in these cases, and although they create much alarm and give a good deal of bodily uneasiness, they never turn to any thing bad. I have known some of these cases to last for thirty years without any perceptible alteration of character. They can sometimes be traced to a slight injury. I do not know what will cure this affection, but there is one method of treatment which I have never known to fail in giving ease to the patient whenever it became painful — viz., to mix about equal parts of ether and spirits of wine together, dip a feather in this, smear the breast with it, and leave it uncovered to evaporate. Scrofulous tumours and ulcerations may, of course, form in the breast as in any other gland, and such a tumour or ulcer is very difficult to distinguish from scirrhus; there is no *single* symptom that will do it. If the patient, however, was under the age of forty, I should doubt it to be cancer, but should have apprehensions as to what it might become if the patient was beyond her forty-fifth year. In this scrofulous tumour of the breast you will fancy sometimes that there is an irregular feel about the tumour, but if you move the part from side to side, you will be able to discover that it is only that natural irregularity which can be felt in almost every breast; the state of the patient generally, and the history of her complaint, will go far to elucidate the case, such as the progress it took, the kind of pain accompanying it, if the lymphatic glands in its neighbourhood have sympathized, and particularly the condition of the skin over the tumour. I am inclined to think that scrofulous persons are rather more disposed to cancer than others. Sometimes you are called to see a tumour in the breast, and not being able to settle in your mind whether it is cancerous or scrofulous, you are allowed to call it an anomalous tumour; these anomalous tumours will yield to calomel and cicuta. I have found great benefit from rubbing over the part the hydriodate of potass ointment, particularly in one case where I lately tried it, and where the cure was certainly very unexpected, as I apprehended it was true scirrhus. If the tumour has formed suddenly, and is accompanied with inflammation, leeches will be of service. There is another affection of the breast that may be mistaken for cancer. One of the breasts begins to grow large, and continues to increase, until, at length, it attains double the size of the other; it is not accompanied with much uneasiness. Investigate the case, and you will find that the patient has some affection of the uterus, not, perhaps, amounting to cancer, and that this condition of the breast is merely a sympathy with the uterine disease, appearing after the stoppage of the menses. It is not cancer, and

you should not undertake any operation for it. It is possible, sometimes, to confound matter forming in the breast with cancer.

Now, when we have ascertained a case to be cancer, how are we to treat it? Why, we are at a loss how to treat it. It makes the greatest difference possible in the case, whether the scirrhus tumour be connected with the skin or not; where it is connected with the skin its progress is more slow, and the disease is more extensive; when the tumour from the commencement is much connected with the skin, either adhering to it, or the integument over it thick, like the skin of a dead pig, without discoloration, the progress is here more slow, the ulceration is more superficial, the skin rises up in grains, those grains enlarge, and the affection will sometimes extend all over the body, down the limbs, and often puts on the appearance of anascarca: but if you feel the skin, it has not the smooth soft feel that you find in common dropsy, but is every where diseased, as I described. I was, not long ago, consulted by letter, to know what I would recommend to cure a general dropsy, and on investigation it turned out to be this form of cancer. Why, in a case of this kind, you can do absolutely nothing. Pressure has been recommended to dissipate a scirrhus tumour; its use will, no doubt, in many instances, apparently diminish the size of the tumour, but it only makes it flatter, extends it diametrically, makes it adherent to the surrounding parts, and throws the disease in on the chest. The internal remedies for cancer have been very numerous, and each succeeding one, after all the promises of its inventor, was sure to be superseded by some other infallible cure, that turned out as ineffectual as its predecessor. Arsenic, given internally, had a long run; hemlock had its day; mercury, opium, bark, iron, and numerous others, embracing every class of medicinal agent, took their turn; and all I need say of their efficacy is, that no practical man of the present day places the least reliance on any one of them for the cure of cancer. But for the relief of those symptoms that render cancer so dreadful in its progress, to mitigate the horrible pain many suffer, both in the affected part itself and in other situations, to correct the fœtor attending the disease, particularly in some situations, and which would be in itself enough to make the unfortunate person's life miserable, and for other purposes that occasionally spring up in individual cases, medicines and local treatment should on no account be neglected. Opium, hemlock, hyoscyamus, and other medicines of this class, often afford great relief from pain, and this, besides being so inestimable a blessing in itself, retards perhaps the progress of the disease. No constitution, however strong, could bear up against such unmitigated suffering half the time that we see some of these cases last under a soothing plan of treatment; but there ends the benefit that alone can be expected from them.

## LECTURE XXV.

Scirrhus (*continued*).—Removal of the breast.—Fungus Hæmatodes.

THERE is considerable variety in the recommendations advanced by writers for the treatment of scirrhus, by means of external applications; they are deserving of a little more attention, because as palliatives to the more urgent symptoms they will be found of great use in the progress of the case, and because cases have been cured by topical treatment without operation. I mentioned already the effects of *pressure* on a scirrhus tumour. Now, slight inflammations will appear, and are a great aggravation of the patient's condition, for besides the fever and local soreness they cause, the peculiar lancinating pains are generally worse at such times than at others, and to relieve these the application of a few leeches are of great service; the patient generally experiences ease for a week or fortnight afterwards; but they do nothing more. Putting leeches to the skin when really engaged in the disease, is, however, not quite safe, for the leech-bites may ulcerate and become cancerous sores. This, however, is not so common a consequence of their application, under other circumstances, as to make us disregard their beneficial effects; but I would advise you never to order leeches to be applied on the skin over a scirrhus tumour unless they be perfectly unadherent to each other, and the tumour itself be moveable. Poultices of hemlock have sometimes appeared to give local relief, and so, it would appear, have applications of cold water; but it is only temporary. Powerful caustics, such as were capable of destroying the vitality of the part, have cured certain cases of cancer by sloughing, but of these I shall have to speak more, presently. The removal of scirrhus with the knife is the most likely means of freeing the patient of the disease, but there are circumstances that may attend cancer which would not only render the operation wholly ineffectual as a cure, but would cause it to aggravate all the symptoms, and accelerate the patient's death.

Where the skin over the tumour is hard, and the line between this diseased part and the sound skin is not clearly marked, never operate in that case. If the skin is concerned only to a short distance, and if the patient is very importunate, you may operate, but this will be the consequence, that in a few months she will return to you with a relapse. A case is sometimes met with of a woman, about forty or fifty years of age, who will have one of her breasts enlarged, and it becomes a large globe of scirrhus. Now, if you operate on such a patient she will die in a week — she will be seized with something resembling erysipelas, and will die in a week. I would never recommend you to operate if the patient exhibits signs of a cancerous diathesis — that is, if her health is generally deranged — if her skin has a leaden or pale yellow hue, with quick pulse, pains like colic, an obstinate constipation for perhaps two or three

days, and then a diarrhœa coming on with griping pains — if the patient complains of pains in her joints, which come on irregularly, and not like rheumatism, being at one part of the day better than at another, accompanied with a wasting of the flesh, with a teasing, tickling cough, and variable appetite — that patient has the cancerous diathesis in full operation: and whenever such is present, and particularly when the leaden cast of countenance appears *at an early period* of the disease, abandon the case — never operate there. In any case where you are not sure that you can remove the *entire* of the diseased part, never think of operating. Now, if it has deep adhesions, you cannot do that: to examine if the tumour be adherent to the great pectoral muscle, you put the fibres on the stretch by throwing the shoulder and arm backward; you then grasp the tumour in your hand and try to remove it in the direction of the fibres of the muscle. If it will not move freely in this direction, then try to move it more in the perpendicular direction, and if it should, you find the muscle move with it, but if it seems fixed in this direction also, you may apprehend it has formed adhesions to the deep pectoral or to the ribs. If at all adherent, I would advise you not to undertake the removal of one of those tumours with the knife; the result will be only disappointment to you and the patient, as indeed it will unfortunately be likely to be under the best circumstances. When the glands above the clavicle are affected, I would not advise you to operate — not because they could not perhaps all be removed, but when these glands are affected, the parts within the chest are generally engaged likewise; and if the patient has a thick breathing, a tightness in the chest, or a short dry cough, do not operate on any account. If the operation for removing a cancerous breast be deemed proper, the sooner it is done the better — not, as some would suggest, to wait for ulceration to occur, for, as I before said, the patient may die before this ever takes place. For my own part, it is an operation I would not press on a patient or her friends at all. It is one by which very little service is rendered at any time. After submitting to it the patient will get a relapse, and generally sinks within two years. The longest time I ever knew a patient to live after the extirpation of a cancerous breast was four years. The only case I should entertain hopes of success in the operation would be in a woman above sixty years of age. This case will be found occasionally to remain well. Sometimes, on the third or fourth day after the operation, when you remove the dressings, you find the wound looks well, and everything seems to be going on as you could wish, yet perhaps that patient will die the next day of internal disease. If, some time after the operation, the disease returns in the cicatrix, you should never attempt a second operation. Well, suppose a case of true scirrhus not unfit for removal, and suppose the tumour be small and the breast large, are you to cut out the tumour, or remove the whole breast? It has been said if you cut out a scirrhus tumour from a breast, of what use is the remainder? and you must admit there is none whatever, but a chance that some of the disease may

have been left behind. I think you should remove the entire breast—it is by far the safest and best way, but after taking the whole gland away, never think of uniting the lips of the wound by the first intention; fill the wound with charpie, and you may calculate always having as ugly a case of suppuration as you ever saw. In amputating a breast you must not attempt to save skin, unless perhaps the tumour is seated very deep, and there appears no chance of its being contaminated. Whether enlarged glands can be felt in the axilla or not, the incision should meet near it, as you cannot always tell positively at first whether you may not have to cut into that cavity; and besides when the wound is in the direction of the fibres of the pectoral muscle, the matter will more conveniently escape as the patient lies on her side. You should make two curved incisions, one above and the other below, leaving an oval piece of skin between them, and dissect out the gland, either in the direction of the fibres of the pectoral muscle, or in whatever direction seems most convenient to you at the time. You take care to remove every particle of the disease, but after the breast has been removed, in feeling through the wound for the remains of any of those callous bits that may have been left, take care that you do not mistake the end of a divided artery, which has ceased bleeding, for one of them. A great deal of the ease with which this operation is performed depends on the depth to which you go in your first incision. If you go on snipping little bits here and there, you have no notion how the operation will be protracted. Cut through the skin and down to the surface of the pectoral muscle at once, and you facilitate every thing, and avoid a great deal of confusion. Surgeons differ in opinion as to whether it will be best to dissect away the mamma from above or below. I think if the line of the incisions be in the proper direction, the rest is of little importance except as a matter of convenience, and in this point of view the first course will probably be preferable.

Sir E. Home is of opinion that secondary hemorrhage is peculiarly liable to occur after the operation for cancer. My own experience does not at all agree with this opinion. In the operation you will divide some arteries, keep your eye on them, let an assistant lay the point of his finger on that which continues to bleed, and take them up when the operation is over. If they should not bleed when you wish to take them up, invite the bleeding by the application of a sponge wrung out of warm water. After you remove the breast, again feel in and about the axilla, for although before you made any division of the parts, you were not able to discover any diseased glands, yet now you may discover a cluster of them (rather small perhaps), but very hard. In cutting into the axilla it is very dangerous not to make a free external incision; you must give yourself plenty of room, even carrying your incision down along the arm for some way. It will be next to impossible to distinguish several small arteries that come in the way of the knife, but the thinness of their coats renders veins visible enough, and when you see large veins running in the way of your knife in the axilla, you may be sure they are ac-

accompanied by arteries, and if you divide them incautiously, you will often have great difficulty in taking them up, for they will retreat into the loose cellular substance where you can hardly follow them. When you meet any of these vessels, therefore, put a ligature round them, veins and all, and then divide them. When you are dressing the wound, do not put too many compresses and bandages on, for there may be secondary bleeding which these will conceal. I have known the entire bed and bedclothes, and even the floor under it, wet with blood, unknown to a careful nurse-tender who sat all the time beside the patient. The attendant should from time to time put her hand down the side to the back of the patient to feel if there is any wet, and if so, to examine if it is blood. In cutting into the axilla, keep in your memory that you are surrounded by blood-vessels; at the pectoral margin you have the long thoracic artery — behind, a large vessel, the subscapular artery — internally, the other thoracic arteries, and externally, towards the humerus, the axillary vein and artery — a wound of either of which would cause the immediate death of the patient. Remember, also, that patients cannot bear the loss of much blood in this disease — I have known a patient to die on the table from the loss of a very inconsiderable quantity of blood from the subscapular artery. Recollect that when an artery is wounded here, it is anything but easy to come at the bleeding mouth to put a ligature on it. Now, if you feel one or two diseased glands, where it is dangerous to remove them with the knife, and they must not be left there, or your entire operation will be fruitless, what you should do is this: put a ligature round the part by which they are held in the cavity, and tie it tight, then insulate the gland by putting some lint round it, and leave it so until it falls off. If you do not insulate it in this manner, although you have interrupted its usual supply of blood, arteries will shoot into it from the surrounding parts; it will continue to be as well nourished as before, and you leave the disease behind you.

When scirrhus ulcerates it does not *immediately* take on the characteristic appearance of a cancerous ulcer — some weeks elapse before it looks like one. When it opens a fungus shoots out; it is not like ordinary fungus; it has the rocky hardness peculiar to this disease. This, after a time, sloughs off, and an ulcerated surface, sooner or later, presents itself having these characters; it is hollowed into irregular pits; its edges are sometimes, or at some parts, inverted, at others everted, but always hard and raised above the surface. In one part of the ulcer you see it covered with something like healthy granulations, and in another part hollows full of ichor; it discharges a large quantity of a watery-looking fluid, and it secretes a glutinous one which adheres to the surface of the sore. When the ulceration proceeds in one direction for a time, there comes a raised line, and the ulceration appears to end in that direction and takes another, and thus it goes on, until, at last, a bloodvessel gives way, and the patient often dies from the loss of a very small quantity of blood; sometimes a patient with this sore sinks rapidly — sometimes.

she will go off gradually, after lingering under an irregular and ill-marked hectic — that is, with a pulse somewhat quick, appetite impaired, bowels deranged, but without a regular morning and evening exacerbation ; sometimes, for weeks, the patient will suffer the most dreadful torture with pains in one or both thighs, deep in the very bones, as it were, and she will say that she does not mind the little pain of her breast if she could only get some alleviation of those dreadful pains in her limbs. The mind also begins to waver from the fever and pain, not often, however, amounting to delirium. Sometimes they go off as if exhausted, and without any warning ; sometimes they go off with some affection of the lungs, with a dry cough, oppressed breathing, inability to lie down, &c. The time for the re-appearance of the disease, after losing the breast, varies ; but you will be again consulted, and you find a small tumour near the seat of the former disease, perhaps in the cicatrix, or you may find two or three of them. If you set about a new operation to extirpate these secondary cancerous tumours, the consequence invariably is, that you only make the progress of the disease more rapid.

Men's breasts are likewise subject to cancer in old age ; I never saw it operated on. Its progress, consequences, and treatment, are precisely the same as in women ; but you meet an hundred cases in women for one in men.

In cutaneous cancer, wherever situated, the knife should never be employed. Here caustics often effect a cure, but of course if the caustic you apply be in powder, or if you use arsenic, &c., it can have no effect on the dry skin. It is in the ulcerated state, therefore, of the cutaneous cancer that they can be of use. The very best application, in my opinion, is Plunket's powder, the composition of which you will find in your books, but it is chiefly arsenic ; care must be taken that you do not apply arsenical preparations to too large a surface. I have seen a patient killed by the application of Plunket's powder to a small cancerous ulcer on the root of the thumb ; he died, poisoned by the absorption of the arsenic, in eight days after its application. I would never apply it to a sore exceeding an inch in diameter. On every occasion where you apply arsenical preparations watch narrowly their constitutional effects. A friend of mine in the country prepares the Plunket's powder for me, and sometimes I do not find it strong enough, in which case I increase its strength by the addition of corrosive sublimate. Remember this, whatever caustic you employ, it must be strong enough to destroy the part in *one* application ; if you only use it weak you excite fever and irritation, and certainly forward, instead of destroying, the disease ; and, not only this, but you render all future local treatment unavailing. Plunket's powder, then, will have no effect on a dry wart. The way I use this preparation is this : I sprinkle the powder over the sore, I then smear this over with white of egg, and lay some gold-beaters leaf over all ; this, shortly after its application, excites the most exquisite pain. The whole is to remain on untouched for eighteen days. Potassa fusa, or butter of antimony, will sometimes answer the purpose.

*Cancer of the testicle* is not a very common disease, and many a man, I suspect, has lost his testicle for a supposed cancer, where no such thing existed. We shall leave this, however, as well as cancer of the penis, &c., until we come to speak of diseases of those organs particularly. Escharotics will often cure cancer of the lip, but it takes away a piece out of the lip, and when it does this the patient can never afterwards take a drink; he can take a sup, but he will never take a drink. I know a gentleman to whose lip the escharotic was applied for a supposed cancer, and after leaving him in this predicament, the irritation caused by the remedy brought out a plentiful crop of venereal eruption. You may make very free with the mouth when you use the knife for the extirpation of a cancer there. In one case I removed nearly the entire of the under lip, and in fact his whole mouth was made up of the upper lip, yet, after a time, there was less deformity than could have been supposed possible.\* Before undertaking the operation on the lip, examine if the neighbouring parts are contaminated. I do not know why it is so, but the first parts affected by the disease in the lip are the chain of lymphatic glands in the line of the fascial artery; the next place is in the vicinity of the submaxillary gland. Now, you may say the extension of the disease to these parts can make little matter, as they could be removed without much difficulty; and, if everything else was favourable, this complication surely should not stop me. Well, suppose you feel the submaxillary gland very hard, you make an incision over it, and presently you are in the middle of it, and find, notwithstanding its hardness, that it contains a quantity of a dirty yellow fluid, and then you have, very unsatisfactorily, to endeavour to remove as much as you can of the diseased capsule. If the cancer had extended to the jaw-bone, and involved it in the disease, it would be a very unfavourable case for operation. In dividing the lip take care that you cut fairly through it, and not unevenly, which might be the cause of secondary bleeding into the mouth; when the part is fairly excised apply the hair-lip suture to keep the lips of the wound together; sometimes you will have to remove a piece from the cheek also, but you may make as free with the cheek as with the lip.

## FUNGUS HÆMATODES.

Among the numerous diseases that have been confounded with

\* I saw once about two-thirds of the under lip removed for cancer in an old man in the Meath Hospital. It was the second time the patient had undergone the operation; the first time it had been done in the usual way, but the second time a piece of integument, about the size necessary to fill the vacancy in the lip was cut from under the chin and merely retained by an isthmus of skin about two lines broad, which was twisted in bringing the excised part, to which it was attached, up to the level of the deficiency in the lip. There it was retained, and its edges kept in apposition with the cut ones in the lip; it united, but its edge was below the edge of the rest of the lip. The deformity was inconsiderable, and the only thing odd-looking was, that while the beard on the portion left of the true lip, and on the chin, pointed as usual downwards, that on the new piece pointed upwards.—*Ed. of Lect.*

cancer is spongoid inflammation or fungus hæmatodes. Indeed, some writers, from their belief in the identity of the two diseases, have called it soft cancer; yet the two differ from each other in many essential particulars. We saw that cancer is most prevalent at the later periods of life, and is scarcely ever seen before the meridian of life. Now, fungus hæmatodes is, on the contrary, rather more common in youth than age: there is scarcely any age in which an instance of it may not be met with — in infancy, at puberty, or at a very advanced age. I saw a child only three years old who had the disease in its testicle, and who had to undergo the operation for its removal, and I have not unfrequently met it in elderly people: I think between thirty and forty is the most common age to see it. There is much variety in its characters, both as regards its internal structure and those external features by which it is to be recognised by the surgeon, some of which depend on its seat, but others upon no assignable cause. When it attacks the limbs, it begins as a tumour. If it should be just under the skin, if it is not situated under a fascia, it feels very soft and compressible, and you can move it about under the skin, to which it has no attachment: you cannot define its limits by sight or touch, even in its very early stage; it seems confounded with the parts beneath it. If it is under a fascia, or other unyielding structure, however, it is more tense, and sometimes feels very firm, but always differs from an encysted tumour in the sensation it gives the hand of an examiner. Sometimes, from the springy elastic feel of the swelling, it would almost seem to contain nothing but air; at other times it perfectly resembles the feel of fluctuation. In the commencement it gives the patient no pain or uneasiness whatever: he is often even unconscious of its existence for a considerable length of time — in fact, the tumour is frequently the first thing he notices. A common place for it to occur is about the scapulâ, and in this situation I have known the tumour to attain a large size before the patient was at all aware of its presence. In its early stage it has nothing remarkable about it, and yet on examining it you are conscious it is not like other tumours, and that all you have to do is to watch its progress. When it begins to give pain, the sensation is as if scalding water was constantly pouring on the part, or as if a hot iron was laid on it. Pains are also felt darting through it, and their severity and frequency of recurrence increase with the advance of the disease. In the beginning, however, they are trifling, and are not increased by exercise or by handling. Unlike cancer, the integuments over a fungus hæmatodes are neither discoloured, irregular, thickened, nor puckered. Indeed, it frequently presents a perfectly sound appearance, even after the tumour has attained a very large size, and all one can particularly remark about it is, that it is on the stretch, and has a number of large flattened veins running through it. As matters go on, the pain becomes more constant and severe; unlike cancer, the diseased mass extends deeper and deeper, as well as enlarges in every other direction, and the free motion of the limb becomes impeded. At a still more ad-

vanced stage the tumour frequently becomes irregular on its surface ; in some places it will be very hard, as hard as scirrhus, while between these hard portions there will be the exact feel as if it contained a deep-seated fluid, and yet if punctured at one of these spots no fluid may be discharged. Should there be more than one of those soft spots, and that they are but a short distance from each other, you will be conscious that they do not communicate with each other, if you alternately press one or the other with your fingers, as other collections of matter will generally do. After an uncertain period of time has elapsed, the skin over the tumour at length gives way, and a glairy kind of fluid is discharged ; this continues to flow for a very few days, and then a fungus makes its appearance, which bleeds on the slightest touch, or even spontaneously, and sometimes in an alarming quantity. This fungus, which increases from day to day, discharges a watery fluid, extremely fœtid, and sometimes mixed with blood. When it bleeds, the blood evidently comes from veins, for it has not the florid appearance of arterial blood. Long, however, before the skin ulcerates and gives way, the patient suffers the most intense pain, and is reduced by it and night sweats, loss of rest and appetite, &c., to a very low state. It is said that the patient dies from loss of blood in this disease, but certainly that it is not always the case, for they often die before the skin has ulcerated, and of course before they have lost any blood at all. I think they die of the severity of the pain and hectic fever. There is one very remarkable thing in fungus hæmatodes, and which shows a marked distinction between it and cancer, and that is, that the former sometimes occurs in several parts of the body at the same time — a thing that is never witnessed in cancer. According to my experience, it is true that wherever cancer may be the lymphatic glands in the neighbourhood become affected, as the axillary and other glands in cancered breast, but then this is an *extension* of the disease, there is a continuity between them, and not, as in fungus hæmatodes, two parts, at some distance from each other, taking on the disease at the same time. This forms a strong distinction between the two diseases. If we do not examine a specimen of the disease until the patient dies, we are struck with the fact that there is precisely the same appearance of structure in all these tumours — namely, a substance very much resembling putrid brain or blood ; but if we make our investigations into the constitution of the tumour in a limb, suppose after amputation, we find great variety in its apparent structure. Examined in this way in the early stage of the disease, we are unable to perceive any very distinct structure, but a number of striæ running through different parts of it. If the disease had advanced farther, we shall find, on examination, a number of cavities in it containing a yellowish fluid, and these it was that gave the feel of fluctuation during life in some parts of the tumour. When examined after death, if it had been near a bone, the bone will be carious and crumbles in your hand : if you cut into the tumour, it sometimes looks like a piece of coarse sponge saturated with blood,

having recesses in various parts of it, and obviously cellular: it has a soft greasy feel, like a soft piece of pudding, with coagulated blood mixed up with it in different parts; when under an aponeurosis it seems as if it was encysted or tied down by the fibrous membrane, and in such a case it will have a hard feel during life, from the very beginning.

There is no part of the body free from the invasion of this formidable disease. It is a very remarkable fact that it may even attack the mucous surface of the urinary bladder. The preparation I now show you is the only instance I ever met of it in this situation. You may see that the posterior and inferior surfaces of the bladder are quite free from disease, but it began at the upper part, and extended down to the urethra: it was the case of a gentleman who came up from the country for advice on account of an occasional discharge of blood from the bladder with his urine. It was proposed to sound him, but it was not done afterwards. What you see here is not one-tenth of the size of the tumour when recent—in fact, it quite filled the cavity of the bladder, and distended it. When fungus hæmatodes attacks a muscle it quite destroys its fibrous texture, and to a great degree its colour: a muscle so affected cuts like a piece of liver, and has a good deal the look of it. I saw a case where it attacked the humerus, the bone snapped across, and some attempt appeared to have been afterwards attempted by nature to effect a reunion of the fracture, but the patient died before any great progress was made to unite the broken extremities of the bone.

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## LECTURE XXVI.

Fungus Hæmatodes (*continued*).—An anomalous affection resembling.—Disease of the Testicle—Lipoma—Atrophy—Scirrhus.

An operation to remove a part affected with fungus hæmatodes, promises at least as little chance of ultimate success, as that for cancer—in fact, they are the most discouraging cases we could meet with for operation, unless it can be performed very early, indeed. You will rarely get your incisions for the removal of this disease to heal, as any other wound would do. For a time, indeed, you would think every thing was getting on tolerably well—the part looks clean and healthy, but it soon changes its character. I was present on two occasions where tumours of fungus hæmatodes were removed from the breast, and just this happened, as does in almost all these kind of cases, that part of the wound was healing; and the rest, you would say, doing very well, when a fungus shot out; the disease went on anew, and even with greater rapidity than the original one was doing before the operation.

Before you decide on an operation in one of these cases you must

make a very strict examination of the patient, and you will sometimes find at one time several parts of the body affected either externally or in the cavities; and where you can neither feel nor see any trace of it, except in the part to which your attention was first drawn, your inquiries as to the state of the patient's functions will give you, so far, an insight into the matter as to make you give up all thoughts of meddling with what you can see, although, under more favourable circumstances, it might be easily removed. There is another occurrence, and one of the most remarkable connected with its presence, that may apprise you of its existence when you cannot otherwise discover it — namely, the appearance of enlarged veins in the skin over its seat, no matter how deep the disease may be situated. Now, in investigating the possibility of eradicating the entire of the local disease by an operation, and of course the probability of ultimate success, there is one circumstance, connected with these tumours, you should recollect, that, although this affection often attains an immense size, you will always discover that it is much more extensive even than it seems; its limits are not regularly defined, so that it would be quite useless to try to cut out the *tumour* merely, for this disease, like cancer, will attack the cicatrix, and, as in cancer, a secondary operation only hastens the fatal termination of the disease. Besides, it will have so insinuated itself among muscles, and other structures where you dare not follow it, that any attempt to remove but a portion would give rise to a violent hemorrhage that would throw every thing into the greatest confusion in an instant. If every particle of the diseased structure could not be removed, all you would have to do would be to amputate the limb at once; and even although you can do this, and at a good distance from the actual disease, what hopes can you with prudence give the patient's friends that there will not be a relapse? Very little, indeed. If you operate, you should do so before the tumour begins to be painful. You cannot be too cautious in your promises when about to operate for fungus hæmatodes, for although you remove the limb, and with it all of the disease apparent, you can never tell but some *internal* part is likewise affected with it. The last case I saw of fungus hæmatodes, in Steevens's Hospital, was in the thigh of a woman. She died; and on examining the abdomen, *every thing in that cavity was perfectly sound*, but on opening the thorax the lungs were found affected with it extensively; and this was a fair example showing where the disease existed in two places distinctly at the same time, and where it could not have extended from one to the other. Medicine of any kind is as perfectly useless in fungus hæmatodes, as it is in cancer. I remember seeing a young man who had it in his arm, and it appeared to be excited by a slight blow he got in play with his brother: a physician attended him who thought he had made a great discovery — viz., that his patient had had a gonorrhœa a couple of weeks previously to this appearance of the fungus hæmatodes: he accordingly put the young man under a course of mercury, and the result was enough to deter me from ever thinking of giving mercury as a cure for fungus hæmatodes as long as I live.

There are other diseases, which, seeming to have some affinity to cancer and fungus hæmatodes, yet are not, in my opinion, either the one or the other. I do not know what name to give them, but this drawing, however, shows their appearance. [The swelling was in the neck, the whole of which seemed to be engaged; it appeared to have a number of welts or thick wrinkles of a bluish colour traversing the neck round. The whole of the neck was of a bluish colour; the extent of the disease was pretty accurately demarcated above by the horizontal ramus of the jaw, and below by the clavicle.] In this case the man got a swelling in his neck; a puncture was made in it, and shortly after the patient died as if he was choking. I saw an army surgeon who had the same description of disease, and he died from hemorrhage that took place two or three times from it. Sometimes the side of the nose swells, as in this drawing. [The side of the nose had a swollen and dark-red appearance, with a number of veins running in different directions.] But I cannot consider either of these as cancer or fungus hæmatodes. The eye is sometimes affected with fungus hæmatodes, the first appearance being seen through the pupil at the bottom of the eye, as a greenish spot with a metallic lustre. This, which is soon discovered to be a morbid growth within the ball of the eye, beginning at the bottom of the cavity, gradually advances forward, until it reaches the cornea and destroys it by its pressure: and no longer having any resistance to its progress, it quickly enlarges to a frightful extent, altering or destroying every thing in the orbit—nerves, muscles, and the adipose substance. The eye has been removed by the knife for this disease, but with as little success as operations for fungus hæmatodes generally experience: yet if the disease be recognized very early, the patient ought to get the only chance left him. In the majority of such cases, particularly if it has existed for any time, the brain will be found extensively diseased.

Fungus hæmatodes sometimes attacks the testicle; indeed, as far as my experience goes, it is a much more common disease of that gland than scirrhus, which is not very often met with in it; and when in this part particularly, there is not a surgeon, no matter how practised he is in the tact of fluctuation, that may not be deceived as to the real nature of what he has come to examine. I would defy any man to say positively, in some instances, whether a case be hydrocele, a collection of matter, or other fluid, or fungus hæmatodes of the testicle, from the mere feel of it. You will now and then meet cases where you will suspect that there is something more than dropsy on a careful investigation, even early in the disease, for the constitution soon sympathises with the one, and not with the other; you will be able, perhaps, to detect some of the lumbar glands enlarged, and you will notice the peculiar unhealthy yellowish colour of the skin; both, however, begin without pain, but, as in all situations where fungus hæmatodes is met, the pain will be excessive at a later period, while there will be no pain in the course of a hydrocele, or any constitutional disturbance, except in some rare cases where the fluid forms very quickly, and presses on an unsound testicle. The fungus hæmatodes of the

testicle attains a very large size sometimes, but its shape, when it might be confounded with hydrocele, is not exactly the same shape as it: in the former, it will be a little flattened at the sides, and begins in the body of the organ; the shape of a hydrocele is somewhat pyriform, and begins at the bottom. If you make firm pressure on the fungus hæmatodes, you generally give pain, but unless the testicle is diseased, and perhaps the quantity of fluid small, you do not give pain in pressing a hydrocele. You know that in hydrocele of the tunica vaginalis of the testicle the scrotum undergoes no change of colour, but in fungus hæmatodes of the gland the scrotum will often, even in the early stage, be of a deep unhealthy red or livid colour, or the redness may be slightly marked, and there will appear the enlarged veins on its surface. If your suspicions are awakened, and that you examine farther, you may find some of the lymphatic glands in the groin enlarged and diseased, or you may be able to feel some of the glands in the abdomen in that condition; or from seeing the extremities œdematous, you may suspect that some of the glands through which the absorbents of the limb pass have become diseased, although not so enlarged as to allow them to be felt externally. When the disease has made sufficient progress, the surface will become tuberculated in the fungus, but it is generally uniform and smooth in hydrocele, except at the upper and back part where you may feel the hard and irregular depression of the testis. You may find in the spermatic cord or elsewhere, an indication of something wrong going forward that will deter you from setting about puncturing for hydrocele; but you may see cases where the diagnosis will only be found by the trocar, when it will, unfortunately, be of little service, if fungus hæmatodes.

In the mouth, also, where the disease is not uncommon, the deception is likewise very complete. A child just shedding its first teeth, for example, or in a child before or after this, one of the incisor teeth is pushed up, and after this another, and in a little time a fungus comes out of the socket; this gives the most obvious feel of fluctuation, and the surgeon, perhaps, thinks it a little abscess, and is only made aware of the truth on making a puncture in it. Sometimes a swelling makes its appearance at the side of the alveoli, and as the feel of fluctuation is quite perfect, it may be thought to be a collection of matter in the antrum highmorianum, making its passage out in this way; but if you examine the case attentively, you must see that so large a collection could not have formed in the antrum without causing an external swelling in the situation of that cavity. Wherever, therefore, there is not an external swelling of the bone, in such a case, be very cautious, for very probably it is a fungus hæmatodes. A dentist, if he sees the child, will say, the fungus comes from a rotten tooth, and perhaps extracts another; but the fungus in this case is not like one coming from a sore, for in the fungus hæmatodes you will observe *it is covered with cuticle*, which no other fungus here is. Fungus hæmatodes is a worse—a more violent disease than even cancer, or almost any other disease I know of.

## DISEASES OF THE TESTICLE.

We shall now consider some of the diseases of the *testicle*. A patient in imperfect health will come to you with an enlarged testicle; he is, perhaps, about twenty-five years of age; sometimes both are enlarged. If you hold it in your hand it feels heavy, but it has not at all the weight of a scirrhus testicle, for cancer has really great specific gravity. Although this testicle may have a spur or process on it, or appears soft in one place and hard in another, yet it is not fungus hæmatodes. This is what is called a scrofulous testicle; but you find such a one in many individuals who have no symptom or appearance whatever of scrofula about them — the name is used, I believe, for the want of a better. The patient feels no acute pain in the part; there may a slight pain or dragging sensation in the loins towards evening, but when it enlarges to a great size, its chief inconvenience is from its weight, and the patient cannot go without having it supported in a suspensory bandage. If it is allowed to take its own course, a little water will collect in the tunica vaginalis after a short time, and when this happens, the state of the testicle begins to alter, and for the better. As the fluid increases the solid swelling of the testicle declines; but sometimes, if let to take its own course, it will go on without any change for three or four years, except that it continues to enlarge. I have seen a testicle, thus affected, grow to the size of a man's hat — every bit as large. A spontaneous cure may take place without any obvious reason. Now, although this testicle is heavy, and not always even on its surface, it has neither the lancinating pain of cancer nor the burning feel of fungus hæmatodes, and the cord will always be free from disease. The treatment I have found best for this affection is small doses of mercury — say five grains of blue pill combined with cicuta, in the twenty-four hours, or calomel and cicuta; but mercury should never be given here in full doses, such as you would give in the venereal disease, but merely to touch the mouth slightly. If you press the mercury too fast or too far, you invariably quicken the progress of the disease; and although you, on seeing this, suspend the exhibition of the mercury, and begin again in a month in small doses, you will not then succeed with it, as you would have probably done at first, if you tried it in the same way. I believe the mercury without the cicuta would be as efficacious as the combination, although I always order them together. While giving the mercury for this scrofulous testicle, as it is called, we must support the patient's constitution with good diet, &c. Will the mercury leave the testicle in its perfectly natural state? No; a little tumour or swelling will remain about the epididymis, or somewhere else about there; nothing will leave it perfectly as it was before, yet it performs its functions very well, I believe, notwithstanding. Sometimes mercury, and everything else you may direct, fail in reducing the swelling, and in this case the disease will be found to be kept up by some morbid condition of the urethra, as stricture, diseased prostate gland, &c.; this is not, however, a very common thing. Should you find that there

is a stricture in the urethra, you need not mind the swelling of the testicle, but attend to the stricture, and in curing that you cure the testicle at the same time. You will often succeed in curing an enlarged prostate by curing the stricture which would appear to be the cause of its enlargement in these cases. I know of no case where such great care is necessary in the exhibition of mercury, as in this scrofulous testicle: you are merely to have the mouth slightly touched. Suppose you find nothing wrong in the urethra or prostate, what are you to do? Send your patient to the sea-side, stop the use of the mercury, and you will often succeed, with exercise and sea-air, to effect a cure; but remember the first thing you are to try in this scrofulous testicle is mercury. Sometimes, after continuing for five or six months, water will form in the tunica vaginalis, and is attended with extraordinary pain in the part, and this often before more than a spoonful is collected; this arises from the fluid accumulating more quickly than the tunica vaginalis can yield to the distension. If you make a puncture with a lancet and let out the water, you quite relieve the pain, and if it collects again there is less pain, because this time the tunica vaginalis yields better than it did the first time. I had a patient in the hospital, a labouring man from the country, in whom the disease had advanced so far that he was totally unable to labour in the field, from its size and weight; he forced me to remove it, and he did very well; but excepting in a case of that kind, there is never any necessity to extirpate this description of testicle. Well, the disease may end thus. The scrofulous testicle, then, it will be understood, has nothing whatever malignant in its character; it will sometimes admit of being reduced to its natural size, or nearly so, by judicious treatment, or it may get well of itself; sometimes, however, it does not terminate so quietly, but in an affection called *lipoma*, which we had better consider as a distinct disease. When you find one of a man's testicles much larger than the other, do not be in too great a hurry in coming to the conclusion that the increased size is actually the result of disease, and put the man at once under the inconvenience of medical treatment for what may be a natural circumstance; one testicle is almost always larger than its fellow, and sometimes even twice as large, and yet the person may arrive to the middle periods of life without noticing it. The mere relative size is nothing, although, when accidentally discovered, it may alarm a timid individual, and cause him to apply to a surgeon for advice.

## LIPOMA OF THE TESTICLE.

A man gets a swelling in one of his testicles without any cause that he knows of, and it may go on slowly enlarging without giving him any uneasiness for two months, but about this period it begins to give him some pain, and after a time a spot in the scrotum gets diseased, and by and by this spot sloughs, and on the slough separating and coming away, a little fluid escapes like the fluid of an

ordinary dropsy. Soon after this a quantity of sloughy substance, of a whitish or yellowish colour, appears from the opening, larger sometimes than the testicle itself; after a little while this slough falls off, and a cauliflower fungus shoots out. This is formed of the substance of the testicle itself, for I have more than once taken a portion of it up in a dressing forceps, and have been able to draw out the tubuli testis in shreds of considerable length, exactly as you could to a testicle in the dissecting-room. Now, this lipoma of the testis, as it is called, is as frightful and ugly a looking thing as is often met with, yet it is not cancerous. It is by no means an uncommon case, for you have six or seven of them every year in the hospital. In such patients, we very often find some remains of an uncured venereal affection—indeed in the great majority of them, it is so; but it is not to be received as a symptom of the venereal disease. The fungus, bad as it looks, is not at all malignant. The treatment, which I have never in a single instance known to fail in curing it, is this: small doses of mercury, given in the same way as for scrofulous testicle, just slightly to affect the mouth, and to sprinkle some finely levigated red precipitate on the fungus, and lay a little dry lint over it; in two or three days remove this and you will probably find the fungus very much reduced; a fortnight, however, may elapse before you see much improvement, but persevere in the application of the precipitate, and it will gradually but steadily cause the fungus to disappear; the integuments heal over it, leaving a depression at the part which adheres to the testicle. When the disease is in the middle stage—that is, after the skin has sloughed, and the appearance is that mixture of dirty whitish slough, and the brightness of the fungus, if you were to form your opinion by the appearance of the part alone, you would be inclined to say, “this is certainly cancer.” But the patient has not the look of one labouring under cancer, and particularly cancer in so advanced a stage as to bear an external resemblance to lipoma; the testicle from beginning to end had not the weight of a scirrhus, nor have the exposed parts the stony hardness inseparable from true scirrhus. Its progress has been attended with but trifling pain comparatively, and neither the cord nor the neighbouring lymphatic glands are engaged. Whatever pain there is in the part is not the kind of pain that would be felt if there was anything cancerous in its nature.

#### ATROPHY OF THE TESTICLE.

The testicle is subject to a very singular affection the very opposite of the preceding, what is called *atrophy of the testicle*, in which it wastes away without the slightest apparent ill health in the patient, and often without any morbid affection of the gland itself, that can be detected. It is true, it can sometimes be traced to a hernia humoralis, which has been reduced to its natural size by the usual means, but which does not rest there, but continues to dimi-

nish from day to day until it entirely disappears. Sometimes there is a little pain felt in it during its progress of absorption, but sometimes none whatever. People have puzzled themselves to account for all this, and accordingly it has been attributed by some to the wearing of tight breeches; but at one time, when some of the military were received into the hospital, I saw two Highlanders together there, in whom the testicles wasted away. As fine a young man as ever I saw applied to me on account of the disappearance of one of his testicles, and the other going. Of course I gave him but little comfort, the disease went on, and not a trace of either remained. In some months afterwards I received a letter from him, inquiring if he might venture on matrimony, as he had a good offer. When the testicles waste away, of course virility also waste away. I do not know anything that has the slightest effect in stopping this decay of the testicle. My lamented colleague\* told me often that he had succeeded in stopping the progress of this decay by the introduction of bougies into the urethra, not only when there were strictures there, but even when no obstruction could be perceived in the passage. I tried this practice once, but it totally failed.

## SCIRRHOUS TESTICLE.

*Scirrhus testicle* is, as I before remarked, not by any means a common disease; it is met with after the meridian of life, and generally in old people.† From the very beginning it is of a stony hardness and great weight—two essential characters of scirrhus anywhere. It seems to begin in the very centre of the body of the gland, and at last takes possession of every part of it, the epididymis being the last affected usually; but, as it may exist for a time without giving the patient much trouble, you are not always able to say in what part of it it first commences. After a time it grows irregular on its surface, and you can feel that the spermatic cord is become engaged, it gets hard and tuberculated, and this may creep up to the external ring, or disappear through it. A little fluid may form in the tunica vaginalis, and its formation be attended with a great accession of pain in the parts. The scirrhus testicle itself does not usually attain a large size, nor is its progress rapid; it becomes adherent to the scrotum at length, sloughing, fungus, and ulceration soon follow, and the patient is carried off by pain and hectic fever, probably after a year of suffering. The operation for the removal of a scirrhus testicle, although by no means one likely to add to a surgeon's reputation, has certainly been more successful than that for fungus hæmatodes. In coming to any determination on the propriety of

\* The late Mr. C. H. Todd, who had been one of the professors of anatomy and surgery to the College School.—*Ed. of Lect.*

† It is remarkable that of ten cases given of cancer of the testicle by Mr. Pott, the average of their ages was about thirty-seven or thirty-eight, when the disease commenced.—*Ed. of Lect.*

operating on a case of this kind, the state of the spermatic cord is the first thing to be considered, for if this process is contaminated quite up to the abdominal ring, the operation should on no account be undertaken; or if it extends so near the ring that, the weight of the testicle being taken off by poising it in the hand, it should then retract, so that the diseased part of the cord should approach the ring, nothing serviceable will be gained by the use of the knife, but probably quite the reverse, for the constitution will, by this time, have become thoroughly affected.

*Abscess* sometimes forms in the body of the testicle. The formation of the matter is attended with excessive pain, and yet nothing whatever may be seen externally to account for it; the scrotum is not discoloured; there may be some œdema about it and there may be none; there is fever, but it is from the beginning, or at least it very soon becomes of the irritative kind; the patient has a flush on his cheek, and may sweat at night. An incision with a lancet through the substance of the testicle gives exit to perhaps a spoonful of matter, the tunica albuginea is relieved from the tension, which was the cause of the pain and constitutional disturbance, and the patient speedily gets well; in fact, the relief he obtains is immediate and complete.

There is a curious affection of the testicle and scrotum so common among the inhabitants of Barbadoes, that women are in the habit of saying such a man has Barbadoes testicles if he should happen to have large-sized ones; these organs attain sometimes an enormous size. There has been no cure yet discovered for it.

Sometimes a tumour will form over the spermatic cord about the size of a gooseberry; it appears unconnected with the cord, is moveable, and feels as if it contained a fluid. In the case I saw of this, it was advised to cut it out, which was done, and the patient merely escaped with his life. I would rather at any time extirpate a testicle than such a tumour again. I do not know what name to give this disease.

## LECTURE XXVII.

Castration.—Retention of Urine—From paralysis—Senile debility—Irritable bladder—Catheterism.

### CASTRATION.

THE operation for the removal of a testicle may be required for a scirrhus of that body, for fungus hæmatodes, or for any great enlargement that interferes with the business or comforts of life. It can never be required for the lipoma. Having first satisfied yourself that the case is one for which the operation is absolutely required, your attention is next to be directed to the consideration, whether the stage or condition of the disease be such as will permit

you to remove the whole of the morbid parts (as suppose in cancer), as otherwise you may do that which will neither serve your patient nor yourself. In malignant diseases of the gland you examine if the spermatic cord has partaken of the mischief, and to what extent. Suppose the case to be scirrhus, you feel the cord rigid, we will say, to within an inch of the abdominal ring; but if you go to operate in this case, you may find you had greatly miscalculated the length of sound cord you supposed you had under your control, and this will arise from your making your examination while the testicle was hanging by its attachment above, and when you have taken off its weight by dividing the cord, the latter will retract quite up to the ring, or through it, and into the inguinal channel. What you are to do, then, when examining any such case, is — support the testicle in one hand, and permit the cord to retract as much as it is disposed to do, and by feeling it then, you will obtain an accurate notion of what it is so necessary to be acquainted with before you come to any decision as to the feasibility of removal. The testicle being adherent to the scrotum in front, may not deter you from operating, provided you have a sufficiency of the cord, that the lymphatic glands are not affected, that the scrotum is not too extensively diseased, or that the patient's constitution has not sympathised with the local disease. Having satisfied yourself on these points you proceed to the operation. Now, independently of the chance that the skin of the scrotum over a scirrhus testicle may partake of the disease, there is no use, but the very reverse, in leaving all the skin behind — in fact, when the gland is removed, you will have too much of it. You will, therefore, instead of a single longitudinal incision, make two curved ones, leaving an oval portion of scrotum to be removed. When you come down on the spermatic cord you had better cut it across in the first instance, as this proceeding will render the dissecting out of the testicle much less painful. Before, however, the division of the cord, examine its state again; if you let the testicle hang, you will have a larger portion of the sound cord than you will find afterwards, you will therefore lift the testicle in your hand, and observe to what distance the cord recedes into the inguinal ring. After dividing the spermatic cord, put a temporary ligature round it, excluding the vas deferens, which you will find at the inner side of the cord, and which you can distinguish at once by its firm whipcord-like feel: having separated this, you just tighten the ligature enough to restrain the bleeding until your excision of the testicle is completed, after which you remove this ligature, and tie the arteries of the cord one by one. I do not think it at all necessary to tie the arteries of the scrotum — in fact, you might be half a day tying them to very little purpose. I once saw fourteen of them tied, and after all secondary hemorrhage came on, and all the dressings had to be removed. It is quite useless to attempt to heal the scrotum by the first intention, for it will not heal so, and your attempt will protract, not hasten, the cure — there must be some bleeding into the wound — suppuration will take place in

it, and often with the suppuration an erysipelatous inflammation that would give great delay. Just lay dry lint or charpie into the wound, and let it heal from the bottom.

#### RETENTION OF URINE.

*Retention of urine* is a term that includes things as different from each other according to their cause and state, as any different diseases you can imagine. It is said there may be retention of urine in the pelvis of the kidney, in the ureter, in the bladder, and in the urethra. In the two first cases, we, in the first place, are in want of symptoms to point out their existence distinctly; and in the next place, if we knew perfectly well what was going forward, we could do nothing for the sufferer. There are many causes for retention of urine in the bladder, very different in their nature, and requiring very different treatment, when any can avail. Retention of urine may exist in the kidneys and ureter as a consequence of retention in the bladder—an unfortunate patient dying of cancer of the uterus may have these additions to her sufferings, from pressure on the bladder, or on the ureters themselves. An abscess in the perineum may press on the neck of the bladder, and cause retention of urine: the patient, in such a case, may not have made water for two or three days, and yet the surgeon not hear any complaint made of a want to make water, or any observation at all upon the subject, unless he happens to ask the question, but generally when you lay open the abscess, and evacuate the matter, which, in some cases, is in considerable quantity, the bladder will act of itself, and discharge its contents, without leaving behind any tendency to a return of the retention. Such a case will sometimes give more trouble. In like manner tumours forming in the pelvis may cause retention of urine from their pressure.

Morbid growths in the cavity of the bladder itself, or enlargements of natural structures, as the uvula of the bladder, as also calculi, and inflammation of the coats of the bladder, may be the cause of retention of urine. The bladder may be unable to expel its urine from some fault in the organ itself. Thus, suppose a man falls from a height, and receives a hurt in his spine, paralysis of his lower extremities follows, and the bladder partakes in the paralytic affection: here, if we lay our hand over the region of the bladder above the pubis, we feel the tumour caused by its distension, and all we have to do is to introduce a catheter, draw off the urine, and repeat this every six or eight hours, to afford temporary relief, and relieve the patient for a short time; but such a case will never recover—he will die in from eight to twelve weeks. There is another case of retention of urine caused by the condition of the bladder itself. A man advanced in years, of studious and sedentary pursuits, and of a full habit of body, comes to you and tells you that he has to get up very often during the night to make water, that he passes but little at each time, and is obliged to make much effort to

get away that little. Such men will often tell you, that after these efforts, they had still the feel as if they had not entirely emptied the bladder—they had not the comfort usual in evacuating a distended bladder, and that they experienced some pain in their straining to pass more: by and by this man finds he cannot make any water at all. Now, this is a case where the bladder is in a *less sensible state* than natural; there is no inflammation whatever in it. The first time the patient finds he cannot pass his urine is generally after a long sleep. Sometimes he will remain five or six hours without being able to pass any, but will not send for a surgeon, and after this it will begin to come away, not, however, in a full stream, but dribbling, what is called *stillicidium urinæ*; yet, as in this way, he makes quite as much urine in the twenty-four hours, as if it came naturally, neither he nor his friends imagine there is such a thing as retention in the case. Suppose the man, say seventy years of age—he has suffered very little pain or trouble from the distension of the bladder—he sends for you, and when you arrive, he tells you he has got an unpleasant complaint, that he can't keep his water, and just requests you to stop this constant passing of it, and that then he will be quite well; yet this patient, if not relieved of the retention, will have his constitution become affected with urinary fever; he gets a somewhat severe rigor; he then gets into the hot fit, which lasts about half an hour: this is followed by the sweating stage, which is extremely profuse, and may last four hours. It is not a partial sweat, but general over the whole body, and although he throws off the bed-clothes, he will be obliged to change his shirt several times in the night—in fact, he lies in a kind of warm bath all night, and sheets, bed, and all are drenched. If a second attack of this fever comes on, there will be some difference discernible in it from what you observed at first. In the previous attack the skin of the patient *felt cold* to the hand of an examiner, while the patient was shivering, but the second time, while the patient himself feels excessively cold, the skin feels hot to the hand of another person; it goes on, his head becomes affected, and off he goes. This urinary fever is a true intermittent, and so strongly does it resemble common ague, that if you were to come in during a paroxysm, you might readily mistake one for the other; but the paroxysms of the urinary fever are very irregular in their periods of return: in this it essentially differs from ague, and by it could always be distinguished readily. Now, you read that a patient labouring under this fever has a urinous smell from his skin, or even his breath, but there is no truth whatever in this; the constant dribbling of urine wets everything about him, and diffuses the urinous odour through the whole house perhaps, but I never observed a urinous smell, except where urine was coming away in this manner. Some lighter shades of this fever will attend lighter degrees of urinary disease, or they might be considered as premonitory symptoms that may or may not eventually end in the severer form, but, at all events, will show a disposition in the patient to become affected. He will be chilly with-

out any very apparent cause : his skin will feel constricted and rough ; he will dread any exposure to a north-east wind, or even to get between the cold sheets at night, and will have his bed warmed, yet he may not have anything like a regular rigor.

All you have to do in this case of retention I have been supposing, is to draw off the urine every six or eight hours with the catheter. Now, you are told to apply a blister above the pubis, or on the perineum, or over the sacrum, for the purpose of stimulating the bladder, giving it the disposition to contract on its contents, restoring its tone, and so forth, but I should not advise it ; it is only teasing an old man with applications, which, in all probability, will do him no service whatever, no more than many other things authors advise to be done in such a case. All you need do, or ought to do, is to prevent the distension of the bladder by the frequent introduction of the catheter.

There is a case of retention which you must carefully distinguish from the last, in which all you had to do was to draw off the urine. In this case a single introduction of the instrument does irreparable and permanent injury. It is this : an old man finds he has repeated calls to make water ; at each time he goes to the utensil he has to force himself, and in the exertion, experiences some pain ; he passes only a spoonful or two at each offer, and feels satisfied. You lay your hand over the pubis, but there is no tumour there, perhaps, although you may think you can perceive it, for there may be retention of urine, and yet the bladder be so contracted that it cannot be felt externally. Here, if you once introduce a catheter, that man never makes water again without the aid of one ; he must, as long as he lives, use a catheter to empty his bladder. The way you should treat him is this : give him rest, keep him on moderate diet, keep him from wine for a few days, and in a little time he recovers. He may have a second or third attack, but the same treatment will always answer : you may give him some of the demulcent drinks, and perhaps the best of them is oatmeal tea sweetened with honey, and, if there be much pain, an opiate enema or suppository. You have in this case no means of knowing that there is over-distension, as he makes water often, and not guttatim. Such a case as this is ruined by one introduction of a catheter.

There is another kind of retention of urine. A man for two or three years, perhaps, perceives that he makes water more frequently than his neighbours. He has been in the habit of indulging in wine or punch, or something of that kind. Now, if on some occasion, when he wants to make water, he neglects the call of nature, being, perhaps, loth to leave his liquor or his company, he will get retention of urine. He goes home, suppose, after drinking a good deal, and after, as I said, neglecting the calls of nature before, during the evening, he now tries to pass water before he goes to bed, but cannot pass a drop. He does not mind this, however, but goes to bed, and next morning awakes with *great pain* in the region of the bladder. An irritable bladder will get retention in the same way ; the man is,

perhaps, in a court of justice, and cannot get out when he wants to make water. In these cases you must use the catheter without any delay — you have nothing else for it.

There is another cause for retention of urine in the bladder. A man gets a gonorrhœa, accompanied with much inflammation, which sometimes extends along the urethra to the bladder. He is seized with retention; he tries repeatedly, and with great pain, to make water, but cannot. In this case, if you possibly can do without using the catheter, it would not be advisable to introduce it: at any rate you should first try other things. Should his constitution be strong and able to bear bleeding, use the lancet; but if he is, on the contrary, of a weak and irritable habit, you cannot do this, so give him a warm purgative, and you might throw up an anodyne and emollient enema, such as four or six ounces of mucilage of starch with fifty or sixty drops of laudanum, and let him have a warm hip-bath. Now, if all this fails, you must use the catheter very quietly; take your time and introduce it with the greatest gentleness. It has become a question whether a gum-elastic or a silver one is the best. In every case where it is not intended to leave the instrument in the bladder, I would recommend a silver one, for the wire which gives all its stiffness to the gum one never answers its intention sufficiently. Make yourself dexterous in the use of the metallic instrument, and you will always find it the easiest to introduce, and a full-sized one gives a great deal less pain than a small one, where the urethra is sound. What position is the best to put your patient in for the introduction of the catheter? Wherever you can, make him lie on his back, for as many patients faint when the water is coming away, he may fall over you if you put him in the erect position; and besides this, you have him favourably situated to introduce your finger into the rectum, if it should be required, which is often the case. You should seize every opportunity that comes across you to practise the introduction of the catheter into the bladder; there will be nothing in your future practice more likely to turn out of greater importance to yourself and others than dexterity in this operation, and this is not to be attained without that practical education of your hand which your hospital may daily furnish you the means of accomplishing, if you sufficiently appreciate the necessity. Your anatomical knowledge of the urethra will do something; your passing a sound or bougie in the dead body will add something; but nothing will make you feel steady and dexterous but the frequent practice on the urethra of the living man. When you are introducing an inflexible instrument, then, carefully keep the open end in the middle line,\* and close to the belly, and draw the penis up on the instrument. I may just mention, that the secret of introducing the long instrument, called Home's catheter, is, to introduce it far before you begin to turn it.

\* When this is impracticable (as it will often be on trying to pass a silver catheter into the body of a man with a very protuberant abdomen), I have found it very easy to pass it as far as I wished, by sinking the catheter into the fold of the left groin. — *Ed. of Lancet.*

Should the point of the instrument meet an obstruction, it may only have hitched against the triangular ligament of the urethra alone, and this circumstance you can know by the simple contrivance of letting your fingers relax on the instrument, and it will make a half turn or circle of itself if it is impeded by the ligament. If an awkward surgeon is called in and proceeds to introduce the catheter he does perhaps get it in up to the hilt, and nothing comes away but blood. "Oh!" says he, "there is nothing but blood in the bladder, and the man must die, or we must puncture the bladder above the pubis." Now, in this case, he has pushed the instrument between the bladder and rectum, and if you introduce your finger into the rectum, you feel it there almost, or sometimes, quite naked, it having got through the coats of the gut into its cavity. Well, another surgeon is called in, who introduces the instrument with the greatest ease, and draws off a large quantity of urine. In this case what a pretty figure the first surgeon cuts, and what is worse, what hazard, even of death, the patient is brought into. The catheter is often stopped at the commencement of the membranous part, and may be thrust through the bulb. There is nothing in all surgery so material as being able to introduce the catheter well. As to using force, you will not have to use force in one case out of fifty in the introduction of a catheter. Force should never be used when the urethra is sound. Spasm is mentioned as one of the causes of resistance to the introduction of the catheter, and it is useful to keep up that notion, as we sometimes cannot succeed in passing the instrument when we most wish to do so, and this without our well knowing why. In such a case we may lay the blame on spasm: but for my own part, I have always felt more resistance from spasm in *withdrawing* than in *introducing* an instrument into the bladder. I have sometimes certainly felt considerable difficulty in introducing a bougie or catheter, and by using gentle friction on the perineum, and waiting a little, the instrument has glided in easily, and this in a large urethra; but such a case as this I do not meet once in a year. After the introduction of the catheter, it will often happen that a rigor comes on, but it must not be imagined that it is always an immediate, or even a very quickly, succeeding result. No; the rigor may come on in half an hour, or in twelve hours, or even not for forty-eight after the introduction; and from the length of time which has elapsed, the catheter is often not supposed to be the cause, but it is notwithstanding. This occurrence happens in patients with an irritable bladder, or who have been previously the subject of some disease of the urinary organs. To prevent the recurrence of this rigor, keep your patient quiet, and give him a *full* anodyne draught. Urinary fever is one of the dangerous effects that may arise from the introduction of a catheter; we shall, however, defer saying more of urinary fever at present.

Bleeding from the urethra is sometimes a consequence of the introduction of a catheter, even when it is done in the best manner and without violence. When you first withdraw the instrument from a canal disposed to bleed in this manner, there comes a little blood,

which ceases by degrees, and a coagulum forms in the urethra ; the next time the patient goes to make water, he finds great difficulty in passing any, but after straining some time, he expels the coagulum, and then comes on the bleeding again. Sir E. Home tells you not to make compression on the urethra to stop this bleeding, because if you prevent the blood coming out it will flow into the bladder. Now, you are to pay no attention to this doctrine, but do the very reverse of what it would inculcate. The blood has never been known to go backwards into the bladder under the circumstances we are considering. There is no use whatever in giving such a patient large quantities of spirits of turpentine, acids, and other things supposed to have the property of stopping hemorrhages, but which often injure the stomach of those made to swallow them. You must compress the urethra in this way : get a napkin and roll it up hard, put it between the patient's thighs, and press it up against the perineum for ten minutes, and the bleeding stops ; but this, however, is not without its inconvenience, for the next time the patient goes to make water, he can't pass a drop at all. This arises from a coagulum which has formed in the urethra, and the patient with some straining at length expels it, and the inconvenience is removed.

I mentioned but very cursorily how you were to know when there was really retention of urine : why, to read books written on the subject, one would think there was nothing more easy. Now, I think, that sometimes there is nothing in surgery more difficult. You are told that all you have to do is to lay your hand above the pubis, and you will feel there the tumour of the distended bladder ; and to make the matter quite sure, you have only to introduce your finger into the rectum, and you will feel the fluctuation in the bladder pressing against your finger ; but this is all nonsense. If a man gets an injury of the spine, with paralysis of the bladder, you will certainly have these tokens of the fact, and if you have a long finger, and there be no disease of the prostate gland you may sometimes be able to feel the distension of the bladder, through the rectum ; but this is the very case where such proofs of retention of urine are not at all required, for you see what has happened, and you know the consequence ; but it is in the *diseased* bladder, where the coats are thickened and contracted, that nothing can be felt to indicate retention. It will not yield to the distension, not, as in the paralytic case, where the bladder can be felt perhaps at the umbilicus. Here is the difficulty to know whether there is retention or not. If after death you take out the bladder of such a person, and lay it on the table before you, full of water, you will not be able to feel a fluctuation, let alone through the rectum, where, besides the additional thickness of the parts you have to feel so delicate a thing as fluctuation through, you have no means to make with proper effect a counter-resistance to your finger in the rectum ; and the same fallacy would follow such a trial as if you tried to ascertain the existence of a collection of matter anywhere by feeling the part with one

finger alone. But, besides this, the contraction of the sphincter ani muscle on your finger is so strong, that it deadens its sensation, and you can feel nothing distinctly.

Well, then, while there may actually exist a retention of urine, for which your care and attention may be urgently required, and yet none of those ordinary symptoms of such a case be apparent, you will, on the one hand, meet cases where there seems to be retention, and yet the man not have the disease at all. Why, I know a medical man in this city, and if any six surgeons in Dublin were to see him for the first time, they would all say he had retention of urine; for the urine stops, then comes guttatum, it then stops, and with all his straining, he will not be able to pass a drop, and these efforts will continue, not merely for five or six hours, but for two or three days, and yet there is no retention of urine in this case, notwithstanding all these symptoms, but it proceeds from an irritable and very bad bladder, which is proved by the fact that the symptoms never go off by a discharge of urine. I think you will always know in those cases that there is retention by passing your finger down along the linea alba, and when you come to the symphysis pubis, you will feel just above it a hard small lump, just the top of a diseased bladder, containing urine, and retaining it, although much contracted. I have not had an opportunity of trying this, however, since it occurred to me. The *tinctura ferri muriatis* has been advised to relieve retention of urine, but it never succeeded with me.

The bladder is much oftener tapped than there is any occasion for; if, however, all your endeavours to introduce a catheter fail, and that you must tap the bladder, the sooner you do it the better chance you will have of ultimate success. There are some cases where you would be more anxious to puncture the bladder early than others; but many cases that seem at first incapable of remedy by any other means than tapping, may, nevertheless, be relieved by management; for instance, suppose an old man gets hematuria, the blood will collect and coagulate in the bladder, and will obstruct the flow of urine, you introduce a catheter and nothing comes away but a little blood in the eyes of the instrument. The patient has passed blood mixed with mucus, and he gets retention. Well, you have tried the catheter, as I have said, unavailingly, for the coagulated blood fills up the eyes of the instrument, and you see nothing, under the circumstances, for the patient but to puncture the bladder. Now, I have contrived an instrument for such a case as this without any eyes in it; it is very long, and, as you perceive, of the full size; the end is closed by a ball of silver so adjusted that the joining is not felt by the patient while you are passing it down. This ball is connected to a thin silver wire, the instrument is passed into the bladder and through the coagulum of blood there, until it may be supposed to be in contact with the urine; the ball is then pushed in from the end of the catheter by means of the wire, and the urine is free to flow through.

There are other causes of retention of urine in the bladder of which I shall have to speak specially on another occasion, such as foreign

bodies forming in its cavity, as calculi, or getting into it from without, of which I mentioned an instance already — namely, a gunshot wound, and lodgment of the ball there; or morbid formations in the bladder itself, such as the case I met of fungus hæmatodes in this organ. At present it will not be necessary for me to say more of these, but come to those causes residing in the urethra which impede or prevent the passage of the urine from the bladder. Among these I may just mention, in passing, enlargement of the uvula of the bladder; the uvula is, you know, a slight eminence just at, or a little behind, the opening of the bladder into the urethra. It sometimes enlarges so as to fall against that opening when the urine is being discharged, somewhat in the manner of a valve. You see in this preparation a specimen of enlarged uvula. Although it will occasionally cause retention, as I have said, the approach of the disease is not often marked by any very prominent symptoms, and may be frequently confounded with other matters of which I shall have to speak.

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## LECTURE XXVIII.

Disease of prostate gland—Treatment—Strictures of the urethra—Varieties of—Symptoms of—Cases which simulates stricture.

### DISEASE OF THE PROSTATE GLAND.

AMONG the mechanical obstructions to the flow of urine from the bladder is *enlarged prostate gland*: this enlargement generally, but not always, takes place at the later periods of life. I saw a man in Edinburgh, not twenty-one years of age, with enlarged prostate, and instances are recorded of its occurrence at a much earlier period. These chronic enlargements are much more frequently met with than attacks of acute inflammation in the prostate, but it must be admitted that the symptoms of the latter are not always of so decided a character, nor so easily distinguished from inflammation of some neighbouring parts as to make us quite certain that acute inflammation of the prostate does not happen oftener than is generally supposed. Abscess of the prostate often begins with symptoms closely resembling gonorrhœa; inflammatory fever, more or less well-marked, usually precedes both; there is the same heat and pain in making water; and the pain in micturition is often referred to the same spot in both; there is a discharge from the urethra scarcely purulent perhaps at first, but soon becoming so; but while, in clap, the discharge increases with an uniform progression, in the prostatic disease it will often be observed to be very trifling suppose to-day, profuse to-morrow, again diminished considerably on the next, and so on: even this, however, is not so constant as to be relied on for a distinguishing mark of the nature of the case. There will be often felt a pain

or uneasiness in the region of the gland, increased during the passage of hardened stools, irritability of the bladder, or retention of urine. When matter forms in the prostate gland it is sometimes a perfectly good pus, but occasionally it is of that curdy kind usually attributed to a manifestation of a scrofulous constitution. These abscesses open themselves into the neighbouring parts. In several of these preparations you observe openings into the urethra from the abscesses in the prostate; in others, they discharge themselves into the rectum, and here is one where the matter would seem to have passed more directly into the cavity of the bladder itself. Sometimes two or three collections of matter form in the gland, either distinct or communicating with each other, and here is a preparation, where, if any of the proper structure of the gland remain, it but forms a thin wall to one large cavity, such as is observed in some cases of collections of matter in the kidney or other glandular organs. Now, here is a preparation where the abscess opens into the urethra, and if you saw the patient when he was alive you would have thought his complaint a very curable one; there was merely a discharge of no great amount from his urethra, which you might call a chronic clap, or gleet, or anything else that came into your head, and yet, as you may well suppose, it baffled every thing that was done for him. Here is a preparation of abscess of one of the lateral lobes of the prostate, having two openings by which it discharged its matter—one into the urethra, and the other into the rectum. Well, all these cases are of course entirely out of our reach.

The chronic enlargement of the prostate seems sometimes to result from sympathy with other organs. I saw a man with both testicles enlarged with what is called scrofulous testicle, and his surgeon was going to extirpate both; we, however, would not consent, and by our treatment the swelling of the testicles subsided, but the patient got diseased prostate. This has lasted him now fifteen years, and perhaps once in four years he gets retention of urine; however, he is soon relieved, and continues to enjoy himself, and I believe is very glad to have exchanged the disease in his testicle for what he has gotten.

If we except a strumous disposition, it is extremely difficult to assign a cause for the frequent occurrence of enlarged prostate gland. We know little of the true purposes of the organ, but suppose it to have a close connection with those of the testicle, *vesiculae seminales*, &c., and yet we are often quite at a loss to connect its diseases with the use or abuse of the generative organs. They are to be found in persons of all habits of life, but more frequently in those long addicted to sensual indulgence.

When enlarged prostate is accompanied with irritability of the bladder, the patient has often to endure very distressing symptoms. When he goes to make water he finds some difficulty in passing any; he forces hard, and then he can get none at all to come. After rest-

ing a short time from his efforts, the urine begins to come away, and then a slight force increases the stream. Such a patient will tell you that he passes the last drops of urine badly — that some time after he has in vain tried to eject them, they dribble from him and fall between his legs — that some also lodge in the urethra, and are discharged from that into his breeches when he has buttoned himself up. The difficulty of making water often comes on with a scalding, but sometimes there is no pain whatever during the whole progress of the prostatic disease, until he gets retention, and often it is only then that he seeks surgical advice. After the disease has lasted some time, the urine becomes loaded with a glairy mucus, which is always an attendant on a diseased bladder. Patients go on a long time in this disease. I know one man who has been in this state for twelve years ; and although he suffers little inconvenience, he is always in danger. He goes out, suppose, is exposed to cold, gets a shivering, and will remain in a state of great constitutional disturbance for from four or five days to fifteen, during which time his life is in imminent danger. He gets great irritability of the bladder. Instead of having to introduce the catheter only every two hours, he has now to pass it every five minutes. After a little time he is unable to introduce it at all : you are sent for, and you introduce it once, perhaps, but cannot a second time ; the urethra has become so irritable that the patient really cannot bear the introduction. Although the catheter remains in his bladder, the patient continues to grow worse ; his calls to make water are more and more frequent ; his urine becomes alkaliescent ; for the bladder being unable to empty itself completely, the little that remains in it putrefies, and if this foetid urine gets on your hands you may wash them ten times in a day without getting the smell of it off them. It deposits a quantity of glairy mucus, which is so adherent that you cannot get it from the bottom of the vessel, and if you stir it with a whisk, you can draw it into strings several feet long. After the urine has remained for some time in the utensil, however, this character of the discharge will be lost, for its tenacity is destroyed by putrefaction. Sometimes the urine ceases to be semi-transparent, and seems mixed with a purulent kind of fluid, and this indicates the worst form of the disease in the bladder. The patient is now making efforts to pass water every ten minutes ; and at last the plug is scarcely in the end of the instrument when it is out again. The abdomen gets full and tender to the touch, he becomes lethargic, gets hiccough, and at length dies of this urinary fever. On examination after death, you find, in general, the bladder contracted to perhaps one-fourth of its natural size or less ; you may find its muscular coat much thickened, but the mucous membrane is always more or less diseased ; it is soft and pulpy, and occasionally ulcerated in one or two spots ; it is thrown into numerous folds, forming shallow cavities all over the surface, except perhaps about the trigone, and you find a little urine in it, and but a little, but it is of the worst description, extremely foetid and purulent — in fact, as unlike healthy urine as any two fluids could be.

This condition of the bladder and urine is not peculiar to diseased prostate : you may find a somewhat similar state resulting from any cause that prevents a free evacuation of the urine.

Home says you can cure the early stage of diseased prostate by preventing the bladder becoming distended with urine, and this you accomplish by not letting it empty *itself*, but using the catheter constantly ; but what is the fact ? Why, in the first place, you would never get a patient to submit to such a treatment in this stage of the disease, and even if you did, it would be as perfectly useless as every other treatment is that has been from time to time advised. Blisters, leeches, caustics, &c., are quite useless. You might give small doses of calomel and cicuta, as a little benefit has sometimes apparently been derived from them. These diseases of the prostate have nothing malignant in them ; true scirrhus of the prostate does sometimes occur, but it is one case in one hundred of enlarged prostate that is true schirrus, which is one of the most dreadful and terrific diseases that could afflict mankind ; the pain is horrible.

When the catheter is to be left in the bladder, you must invariably use a gum one, and you should always, if possible, use it without a stilet, as the withdrawing of the stilet is painful. If you must use a stilet let it be an inflexible one, and one that fills the catheter completely ; one made of brass is best. It is necessary to stop the end of the catheter to prevent the urine continually dribbling out, and for this purpose a cork will not answer ; even corks of the very best description will break, so the best material you can use is a deal plug. Do not suppose this stopping up the instrument a trivial matter ; it is, on the contrary, one of very great importance, as I have witnessed where the plug fell out by accident, and remained out a whole night. If the urine is permitted to keep dropping between the patient's thighs, and getting under him in bed, it will excoriate him, and if he is an old man, the consequence will be that he will die of this excoriation, if the urinary disease should not kill him. It is necessary to guard against the catheter itself slipping out of the urethra or into the bladder. It slips *out* in twenty cases for one it slips *in*. To prevent either, you must get some Bristol wick, or common chandler's wick, and fasten it to the end of the catheter, you then bring it back to beyond the glans, and making a knot between the two ends, pass it twice or thrice round the penis, and tie it, or, what you will find perhaps better, put on a suspensory bandage, and fasten the strings connected with the catheter to it. You must take out the instrument every second or third day to clean it ; in some cases the catheter will be incruited in twenty-four hours, and in others not for five or six days, but should it not seem to want cleaning at all, you must not leave it in too long, for if you do it will break. It is not in the bladder these catheters break, but in the urethra, although the contrary is asserted ; the urine does not affect the gum catheters, but they are acted on by the mucus of the urethra. The flexible metal catheters, as they are called, such as the common bougies are made of, were once very much the fashion, from

the notion that they would not break. I do not know what it is that acts on *them*, but I know they will break. Some can bear to wear a catheter for a long time. I know a man who wore one for twelve months, and who went to public amusements and enjoyed himself, though all that time he never made water but through a catheter, which was changed every four or five days; and I have known, on the other hand, another man who did not leave his bed, nor irritate the parts in any way, who could not bear it longer than from five to seven weeks at farthest. What are the circumstances that would induce you to withdraw the catheter? The patient complains to you that he finds he is obliged to make water oftener than before; there is a tenderness above the pubis; his pulse gets quicker; he is thirsty and becomes feverish, and if you do not remove the catheter when these symptoms come on, he dies of peritoneal inflammation, but not that peritonitis which you meet in strangulated hernia, but a slow kind not a bit less formidable. There is some difficulty, often indeed very great difficulty, in introducing an instrument into the bladder in enlargements of the prostate gland. You should recollect the changes these enlargements have produced on the shape and capacity of the prostatic portion of the urethra. Should only one lobe of the prostate be engaged in the swelling it will project, as it were, into the canal, and cause a lateral curve in it, which it will not be very easy always to get a catheter round. If both lobes are enlarged the sides of the urethra are pressed together with flattened surfaces, and although the whole surface of this part of the canal may be of greater extent than in the natural state, yet it is reduced to a mere vertical slit. Well, you would think on examining this appearance in a recent case, or in some of these preparations, that a catheter of the smallest possible diameter would be the most likely one to enter the bladder of such a man, but in some of these cases a small instrument would have very little chance of passing into the bladder at all; for the openings of the ducts of the prostate have been stretched and widened in proportion to the swelling of the gland, and the point of any but a full sized instrument would have little chance of escaping getting into one or other of those openings. In some of these cases you will require a very long instrument, such as that which is called Home's catheter, and when you employ this, take care to pass it as far into the urethra as you can before you depress your hand, or, in other words, before you elevate its point; for its curve forms a considerable portion of a circle, and if you depress the handle too soon its point will hitch against the upper part of the urethra and triangular ligament. When you have passed a catheter down to the prostate it will often be found that no changing of its position will enable you to get it farther, but in such a case, particularly if it be the middle lobe that is chiefly enlarged, there is a manoeuvre, recommended by Mr. Hey, that will occasionally be attended with success. It is this: draw out the stilet some way, and if it be still enough, it will turn the point of the gum catheter up, and carry it over the obstruction into the bladder; you perceive this effect on my withdrawing the

wire but a short distance. Now, sometimes the greatest skill and dexterity will be insufficient to get in the catheter into the bladder. What is then to be done to evacuate the urine? Some will say puncture the bladder; but in such cases as these you will find this resource unavailable; the bladder is contracted, and will not rise perhaps in any appreciable degree above the pubis, while the volume of the prostate may render the operation in the last degree dangerous, if not impossible, by the rectum.

In a healthy state of the prostate gland, the end of your finger can barely pass its base, and the point of your instrument has to pierce the coats of the bladder yet a little beyond this. You have no guide to that very confined space in the base of the bladder which is to be perforated, except your finger; and, working as you are in the dark, it is a delicate question with yourself whether you may or may not be half an inch this way or that beyond the mark for which you are to aim; and mind you, half an inch astray may cause the patient's death, by opening the cavities of the bladder and peritoneum into each other. Now, if this is true as regards a natural condition of the parts, how much must the difficulties and dangers be increased when the prostate gland is perhaps the size of a man's fist, or larger? I had occasion before to speak of the ordinary difficulties of puncturing the bladder from the rectum; you can conceive how much they would be augmented by an enlarged prostate. The fact is, you cannot safely puncture the bladder anywhere for retention of urine in an advanced stage of enlarged prostate.

Others advise a strong silver catheter to be passed down as far as the prostate permits it, and then to push it boldly through the gland. Now, this you can do, and the very first time you accomplish it, violent symptoms may follow that may bring the patient's life into the greatest danger. Sometimes, however, this does not happen, but the next time you have to pass the instrument you cannot get it through the artificial passage you made the first time, and you have to make a new road, and so perhaps for every succeeding trial, and after all this, nothing is gained, the patient will die, and most likely the sooner for the efforts you made for his relief.

Here are some preparations exhibiting the courses the instruments took in forcing a passage to the bladder through the prostate gland. In this one there are four or five different canals made by the surgeon, and what you see on this table will teach you the little hope you may entertain of being able to find out the first or second passage, or any previous one you had formed, in any succeeding effort you make by this proceeding, to relieve the bladder. It is true they will also show that so much violence is not always *immediately* followed by symptoms equally violent; but, however slow such symptoms are to exhibit themselves, they are sure to come at length. It is from forcing an instrument through the prostate that blood may make its way into the bladder, and thus add no trifling complication to the unhappy state of the patient for the few days he has to exist. I

know it may be said, here is a case where the man must die if not relieved in some way ; it is one where circumstances present no other mode of relief, and is it not fair to give him even a few days respite? From what I have said you are aware that even with that view, success is just possible, and that's all.

## STRICTURES OF THE URETHRA.

*Stricture* of the urethra is another of the mechanical obstructions to the flow of urine. A stricture consists in the narrowing of the canal, and this narrowing may completely surround it, or be chiefly confined to one-half or three-fourths of the circumference : it may encroach but a small way on the passage, or it may be so close as hardly to admit a thin wire ; there may be but one of those contractions or more than one. Although most parts of the urethra may occasionally be the subjects of stricture, yet there are certain parts which appear to be more disposed to the disease than others in which it is sometimes found. We sometimes can observe that a stricture is worse than at other times, and generally some cause can be assigned for this temporary closure : this last circumstance has led writers to class strictures into the permanent and the spasmodic. Now, we are told that we may know when a man has stricture by these symptoms : — He has a slight difficulty and scalding in passing his urine, he has had for some time a gleet, and that if he drinks, gets cold, or has connection with women, this gleety matter becomes purulent ; he has nocturnal emissions : at length his health becomes altered ; he gets rigors resembling those of intermittent fever, but irregular in their periods. Now, every one of these symptoms are found as much connected with other urinary diseases as they are with stricture ; however, he is at last caught by retention of urine, and then he begins to recollect that for perhaps a year or so, he has been making water one day better, and another day worse. Now, a man may have some of these symptoms of stricture without having any stricture at all. If a friend, suppose, has been telling him how *he* was affected when he had stricture, and that this man begins to fancy himself similarly affected, he will go to make water very frequently in the day, merely to observe how it comes away, and the consequence is that the stream will really become very small. Any man can make his urine come in a very small stream by the same method ; and if this man continues this habit, he will at length become unable to keep his urine as long as he used to do, although there is no actual disease in the urethra, or other of the urinary organs whatever. As to the discharge or gleet coming from the urethra, this is just as little to be depended on, for it is common to other affections of these parts. Now, nocturnal emissions are often owing to causes quite independent of stricture ; in numerous cases they are unconnected with the urethra at all. If from what you read on this subject, you question several men suspected of stricture, one man will tell you that the stream of urine is shaped like a cork-screw, as it passes from him. Why, if

every one whose stream of urine was twisted had a stricture, there would be few, I suspect, without one. Another tells you his urine comes in a forked manner. Now, this is caused by a little dry mucus gluing up the orifice of the urethra when he gets up in the morning, and the middle of this keeping its place, will of course divide the stream in two.

Home says that strictures are generally found about six or seven inches from the orifice, and can be detected by passing up a soft wax bougie, on the withdrawal of which the mark of the stricture is plainly to be seen on it. Now, this is just about the place that the urethra is passing through the *triangular ligament*, and the impression on the bougie is nothing more than that of the edge of this ligament. The only way to discover the presence of a stricture with certainty is by a peculiar tact in the introduction of a bougie, only to be acquired by practice. If you pass your finger along the urethra you will often feel it like a small hard cord, and you think there must be a stricture; but it is no such thing; the urethra will be quite wide in that place, and where there is really a stricture you never can feel anything outside to indicate it. I have introduced a full-sized catheter without any difficulty, and, accidentally putting my hand outside in the course of the urethra, I have felt it like a number of knots, or like a row of beads. I do not know what these hardnesses are owing to. Stricture is by no means so frequent a disease as is represented. When I first began to practice in this city, just after Home's book came out, it became quite the fashion in London to have stricture; this fashion soon extended to Dublin, and gentlemen in their club-houses had no other conversation but telling each other about their strictures, how often the caustic was applied, &c. The number of strictures has, however, been declining ever since, and now, in the hospital, for one patient who really has stricture, you will find at least twenty who, having other urinary diseases, have been cured by the use of the catheter, but who have never had stricture in their lives. Many a man who had a very good urethra, has, by the very efforts and practices made use of to improve it, brought on the evils they were intended to cure. Stricture is often connected with diseased prostate gland. While speaking of the prostate I should have mentioned, that there is a morbid state of it in which, on introducing a bougie, the moment it touches it, the patient is ready to go mad with the pain; here there is no stricture, but the use of the bougie cures the patient notwithstanding.

Now, while we see that none of the mere symptoms laid down by authors, afford sufficient testimony of the existence of stricture, independent of an examination of the passage with a bougie, and that even this test can sometimes lead one into error, it must be remembered that there will be found numerous cases of stricture, and close ones too, where not one of those symptoms will be present. A man may have a stricture for some time without being in the least conscious of anything of the kind; he has no difficulty in making water, he passes it in a full stream, and not oftener than other men, and

perhaps the first thing that attracts his notice, in reference to the state of his urethra is, that in sexual connexion the semen does not flow out. It is a very singular circumstance, but one you will often have an opportunity of observing, that this absence of everything that could indicate a contraction in the urethra will be found in cases where the contraction is nevertheless so close, that you will have to overcome considerable difficulty in passing a bougie of the smallest size into the bladder. I am inclined to believe that such strictures will be found of the sharp packthread or annular description, and that where there is a small stream of urine, and some straining required even to pass that, the stricture occupies, in its contraction, some *length* of the urethra — what is called a *long* stricture.

A stricture may at any time give serious inconvenience, and in several ways place the patient in great peril, but the manner in which it becomes ultimately dangerous is by producing disease of the bladder, or of the ureters, or of the kidneys themselves; and unfortunately, it is often not until these mischiefs have been established, or have become irreparable, that application is made for surgical relief.

Two methods chiefly have been resorted to for the treatment of stricture — one is the application of caustics to destroy its texture, and the other to dilate it by mechanical means. The old notion of the constitution of a stricture was, that a caruncle grew in the passage, and by its bulk plugged it up. If this idea had any foundation in fact, the treatment of it by caustic bougies would, doubtless, be a very good one; but the true nature of stricture is now better understood, as far as inspection can make it. You see here several preparations of strictures. In some you observe it is but a sharp ring of little thickness; in others, there is from half an inch to two inches of the canal involved in the contraction; and in others, it would seem as if two-thirds of the length of the urethra were contracted so closely as hardly to admit the passage of the smallest bougie. In all those specimens you observe the dilatation of the urethra behind the stricture — that is, on the side of it next the bladder, forming a pouch, and that the surface of the mucous membrane lining it is, in many instances, speckled with small ulcers, but more or less diseased in them all; this, if the patients lived long enough, would be the precursor to an opening by which the urine would sooner or later escape into the perineum and form a fistula there.

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## LECTURE XXIX.

Treatment of strictures of the urethra (*continued*).—Puncturing the bladder.  
—Fistula in perineo.

MR. HUNTER was of opinion that caustic might be used for the treatment of strictures, but he limited its use to that part of the urethra

anterior to its curve. Sir E. Home says you may apply it to any part of the canal ; but recollect this, that caustic applied according to his plan, will never produce destruction of the texture of the stricture — all that it will or can do, is merely to cause an increased discharge of mucus, but it never will destroy the substance of a stricture. The first or second case, I forget which, where I tried the caustic, fearing I did not make a sufficient impression, I actually twirled it about in the urethra, and what was the consequence ? Why, my patient got retention of urine, and here you see what caused it : in a few days he passed from the urethra this substance, which I believe is a portion of its lining membrane ; it seemed, however, to do him no ultimate harm. Whately's plan of using the strong caustic, or potassa fusa, effects nothing, for it is dissolved by the mucus of the passage, and is rendered inert by it : perhaps, however, there is no great misfortune in this, for if it retained all its caustic energy when dissolved, it would only do the more mischief, as it would be impossible to circumscribe the limits of its action to any one part. There have been other accidents attending the trial of caustic for the cure of stricture ; it has sometimes got disengaged from the bougie, has stopped in the urethra, and has caused ulceration of it, and this in its turn produced urinary abscess and fistula in perineo. There is, I am sorry to say, an evident suppression of facts in Sir E. Home's work. He mentions that rigor is sometimes an effect of the application of caustic to a stricture, but that such an occurrence is always owing to something wrong in the state of the bowels. Now, this is not the case, for the rigor is the first symptom of urinary fever, and this fever may carry off the patient, and the knowledge of this fact was, I believe, the cause of the use of caustic in these cases being laid aside here and everywhere else. Bleeding sometimes occurs likewise, but never, I believe, except from the making of a false passage.

A Frenchman, named Ducamp, invented an instrument, or rather a set of instruments, of an extremely ingenious description, for the better application of caustic to strictures.\* He first introduces this bougie, which is accurately graduated into inches, down to the stricture, and marks its distance from the orifice ; he then introduces this instrument, which is a gum-elastic catheter provided with a stilet ; this stilet has a groove in its extremity to lodge the caustic, and when the catheter arrives at the contracted part, the stilet is pushed out and the caustic applied to the stricture. If the stricture be but on one side of the urethra, its exact position is ascertained previously by the soft extremity of the graduated bougie, and the caustic, by the other contrivance, can then be applied to it without coming in contact with any other part of the urethra. But to show you to what a pitch of accuracy he aimed at arriving, here is an instrument to measure the *length* of the stricture ; it a very small sized

\* Vid.—*Traité des Retentions d'Urine*. Par Theodore Ducamp. Paris, 1822. —*Ed. of Lect.*

catheter, with a stilet so contrived that, having measured the commencement of the stricture with the catheter, he passes this stilet through the contraction, having got beyond which, the end of the wire opens out into two arms at right angles with the wire, and about the eighth of an inch long each: he then draws the stilet towards him, and when it is checked by that extremity of the stricture next the bladder, he marks that on the instrument, and the difference between the two measurements is the length of the stricture. Now, something like all this might be useful to a pump-borer, but it is not at all adapted to enlighten us on the state of the urethra. A gentleman in the Prussian service, when he was in Ireland, applied to me believing he had a stricture. He had an urinary disease, with a tendency to retention. I introduced the largest sized bougie into the bladder without finding any stricture. Three years after this he happened to meet with Ducamp's book, and, again fancying he had stricture, he put himself under Ducamp's care, and shortly after got a fistula on one side of the perineum. He afterwards fell under the care of one of Ducamp's pupils, and got another fistula on the other side of the perineum. He came over here again, and put himself under my care, and, with the greatest ease, I passed the largest sized catheter I had into the bladder: in fact, this man never had a stricture at all, though he had unfortunately been treated for one.

You will find in your books other inventions designed to explore the urethra, besides these elaborate instruments of M. Ducamp, such as metallic balls of various sizes fixed on the ends of wires to be passed through the strictures, and by the little resistance they may give when about to repass the stricture on the side next the bladder to learn its length; but you will remark, that while the inventors labour to show the excellence of their methods to give the required information, we are not very much enlightened as to the practical value of the discovery when made.

Stricture is really a *very* uncommon disease, but the number supposed to have them is very great. There are cases where caustic is not merely useful, but absolutely necessary—for example, a man comes to you with a stricture two or three inches from the orifice: you introduce a bougie, and the moment it touches the strictured part, he is ready to go mad with the pain: the same happens every time the stricture is touched, and it is impossible to proceed with the treatment by dilatation: the patient cannot bear it: here if you apply the caustic, according to Home's plan, you deaden the sensibility of the part, and it will afterwards bear the presence of the bougie. Repeat the trial of the simple bougie as often as you may, the urethra will never reconcile itself to it, without the previous use of the caustic. The sizes of your bougies are of no small importance; the smaller the instrument is, the more difficult it is to introduce it through a sound urethra, for it requires some tact to prevent its point catching in some of the lacunæ. When, therefore, you find it necessary to use a very small one, on account of the closeness of the stricture you have to treat, this must not be forgotten, or morbid obstructions will be

suspected where none really exist. On the other hand, as you advance in the progress of dilatation or cure of the stricture, you are not to continue to increase the size of the bougies as long as you find it possible to get them on into the bladder. You should never employ bougies of too large a size : some of them are made so large that one would never suppose it could enter a human urethra, yet it *will* enter, but if it does, it destroys the tone of the urethra, and the cure, as perhaps it would be called, would disable the patient from ever making water well again. Some violence or other will be done, and the effect will be as I tell you. Do not increase the size of the bougies too rapidly ; if you do, you will find on inquiry that your patient makes water worse instead of better, for you will cause an irritability of the bladder, and you will have to wait until that subsides before you can continue your treatment. Some people with strictures are very prone to irritability of the bladder from slight causes, and even temporary retention of urine, and on this account, as well as others, you will sometimes find it necessary to suspend the use of the bougie for eight or ten days.

Can we always promise a patient a permanent cure of his stricture ? Why, I do not know how to express myself without obscurity on this subject ; but I think a surgeon, accustomed to the feel of a stricture, can always decide this. In a stricture that may get permanently well, there is a softness, a yielding feel, that permits the bougie to get through it without much resistance ; but where there is a firm, hard resisting stricture, you will never be able to get a permanent cure : practice will give you such a knowledge of the *feel* of a stricture as will always enable you to give a pretty certain prognosis. Still, you will in a great many instances, be disappointed eventually, for even when the progress of dilatation has been going on favourably, when it is capable of admitting a large sized bougie without difficulty, there remains a tendency to contract again, and should the employment of the bougie be suspended for a period the whole ground may have to be gone over again. Many of them will, however, remain permanently well. I mentioned that there were cases without any stricture which bougies will cure. Suppose a man comes to you with great irritability of the bladder ; he makes water frequently, and with a small stream, and he may even have a gleet, still there is no stricture, but a very great tenderness at the neck of the bladder. Now, as Abernethy justly observed, the employment of the bougie will cure this disease, and the patient will afterwards make water quite well. But you may meet some of these cases which will not bear the presence of the bougie, and if, in despite of the excessive pain your trial of it produces, you persevere in passing it, you may very much increase all the symptoms ; indeed, in many instances, the patient will not on any entreaty suffer a repetition of the introduction of bougies. Now, these are cases where caustic might be of use, if we could apply it to the irritable part, but I conceive the difficulty would be extremely great in most of them.

Besides the bougie, other methods of dilating stricture have been

contrived. Here is one of them [invented by Arnott] which consists of a little membranous bag attached to the end of a stilet, which is introduced in an empty flaccid state into the stricture, and then it appears you have nothing to do but to inject air with this syringe so as to expand the urethra, and by this means dilate the stricture; but whoever imagines he can dilate one of these hard strictures with such an instrument, knows but little of the matter. Indeed, whatever stricture was open enough to permit the introduction of this bladder, could be easily dilated by other and better means. I tried this instrument on a sound urethra once, and it produced such little dilatation, that I might as well have put it into the man's pocket.

Some of the difficulty in treating stricture may depend on its seat—in what part of the urethra it may be situated. Now, one of the most troublesome strictures met with is in a situation where you would think you had it most under your control, and of course where you would best succeed in your treatment; that is, just at the orifice of the urethra. This is comparatively a not unfrequent situation to meet contraction in the canal; either immediately at the orifice or a little way within it. In the latter case, the orifice will appear more open than natural, or pouting, as it is called. You will employ bougies here as elsewhere, but you will, in general, find them very tedious cases.

There is scarcely any case of stricture of the urethra in which it would be prudent or necessary to use force in the treatment of it by the bougie; a trifling force has sometimes been sufficient to make a false passage. Now, when this unfortunate occurrence has taken place, you do not have extravasation of urine, such as you would most probably have from other violence. The bougie is arrested in its passage by the firm close stricture, and if the surgeon rashly uses too much pressure to force the point of his instrument into the contraction, it may be pushed through the urethra itself. The opening of the false passage into the urethra, then, is in front of the stricture which breaks the force of the current of urine; this is one reason why there should be no extravasation; another is the obliquity and valvular condition of the wrong course of the bougie, the opening of which looks forwards, and consequently unfavourable to the entrance of the urine. But when a false passage is made by the bougie very dangerous symptoms will sometimes supervene of another description. It will occasionally happen that immediately after the accident, there is a severe rigor, often followed by vomiting; there is great depression; the extremities become cold; the next day there seems no appearance of reaction; the extremities remain cold; the tongue is brown and dry; the pulse is weak and intermittent, and in forty-eight hours, or from that to three days, the patient dies.

In, perhaps, the greatest number of strictures, we find more or less constitutional disturbance, such as one or other of those derangements of the digestive organs that come under the general name of dyspepsia; but whether these can in every case be attributed to the stricture or not, we know that any intemperance or irregularity will

make the stricture worse. Coming out of a heated room into the cool air will often produce very unpleasant effects on the urethra when affected with stricture, and not a few of these cases are so susceptible that they will tell the patient pretty accurately beforehand of any particular change of weather, or even the change of the wind to one particular point; and often great difficulty of passing water, or even retention, may be experienced on those occasions, although the patient may have confined himself to bed for some time previously.

#### PUNCTURING THE BLADDER.

When retention of urine occurs, and that we are unable to introduce a catheter for its relief, it becomes necessary to *puncture the bladder*. There are three situations where this operation may be performed — viz., through the perineum, through the rectum, and above the pubis. As to puncturing through the perineum, you might as well perform the operation of lithotomy at once on the man. Puncturing from the rectum is a bad operation; if the retention be owing to diseased prostate gland, it will be hardly possible to puncture from the rectum, and this is one of the cases to which this method would seem adapted, on account of the contracted state of the bladder. Above the pubis is by many degrees the best situation, provided the circumstances of the case allow any choice in the matter.

Before commencing the operation, you should select a gum-elastic catheter that will exactly fit the canula of your trocar; you then cut its ivory top off, to allow the canula to slip over it; and having arranged this, you begin your incision about a finger's breadth above the pubis, and continue it two or three inches upwards through the *linea alba*; you introduce your finger into the wound, and you feel the bladder or something like it, and then introduce the trocar or your finger and push it through, downwards and backwards. When you have got it into the cavity of the bladder (which is known by the loss of resistance, and the appearance of some urine coming up), you withdraw the stilet, and instantly apply your thumb on the orifice of the canula to prevent the escape of the urine. If this is not done quickly, you will be astonished at the rapidity with which the bladder empties itself, and if emptied before you introduce the catheter, it may withdraw itself altogether from the canula, and the urine escape into the surrounding parts. You now introduce through the canula the catheter, which is to remain in the bladder, and draw away the canula itself. The trocar used for tapping for ascites is too short for puncturing the bladder, and so I got one made six inches in length, which is about as much too long as the other is too short. If the patient is fat the short one will hardly reach the bladder, or perhaps just puncture it, and as the bladder is emptied, and recedes from the canula, you will not be able to get the catheter into the bladder. Too long an instrument, on the other hand, may cause you to wound the opposite side of the bladder, and so bring on a fatal extravasation. Having withdrawn the canula, secured the catheter

from coming out, and closed its orifice with a wooden plug, when you have given exit to the urine, you then turn your attention to the affection in the urethra, which had originated the necessity of the operation, and which you have now leisure to remove by appropriate treatment, if it be such a one as will admit of cure. Although you had taken every precaution to prevent the catheter slipping out of the wound, until you thought proper to remove it, yet such an accident may occur notwithstanding, and give the patient and yourself great alarm, which will not be diminished by your not being able to replace it; but although grave mischief may in some instances follow such an occurrence, yet in others the fright will be the worst that will come of it. I saw one case where, on the morning after the operation, the catheter slipped out and could not be again introduced, but the patient did just as well, for the urine came through the wound, and no harm resulted. The opening you have made in the bladder may remain open for a long time. I recollect a gentleman on whom Mr. Obrey and I operated fifteen years ago, and a few days after the operation, we set about to dilate the urethra; the gentleman asked us what we were about, and when we told him, he said that he had been five years labouring under all the torments of a bad urethra — that he was now very comfortable, and well contented with the new mode he had of emptying his bladder, and that he was determined never again to make water through his penis. He was an odd-tempered man and kept his word, and for the last fifteen years has never made water except through the wound. At first, from my previous notions of these things, I thought very serious results would occur from the exposure of the inner surface of the bladder to the air, forgetting what I had seen in my youth — namely, an opening existing in the stomach, communicating externally, so that the man could, at will, discharge through the opening whatever he drank, yet he lived in good health, until a fever, which any man might have got, carried him off.

## FISTULA IN PERINEO.

The urethra behind a stricture is always dilated, and the dilatation is sometimes, though very rarely, apparent externally; sometimes, when the patient is obliged to use much force in expelling his urine, the dilated portion of the urethra gives way, and the urine is extravasated into the cellular substance. Now, this is the common notion of the origin of a fistula in perineo; or that the presence of the urine causes ulceration, which extends, until at last the urine gets through an opening in the perineum; but if by this it is meant to establish a necessary connection between fistula of the perineum and stricture of the urethra, it is perfectly and entirely erroneous. Fistula of course may occur where there is stricture in the urethra, but for one case where it is combined with stricture, you will have two or three cases of fistula in perineo where there is no stricture at all. I saw a patient who had, I am sure, not less than twenty or thirty openings in his

perineum, communicating with the urethra, who applied to me, saying he had stricture. I introduced a small bougie a few inches into the urethra the first day, and could have gone farther, but that I did not think it advisable, as he was of a very delicate complexion and habit. The second day I introduced a large bougie down further, and met no resistance; and the third day I passed a large-sized catheter into the bladder, and found nothing in its passage but a full-sized and open urethra.

Fistula in perineo sometimes begins in a phlegmonous abscess, which, however, does not take the regular course of such abscesses; it will seem one day just going to burst; the next it will have somewhat receded; after some days it will again become prominent, and then perhaps does burst. The urine is discharged from the opening for some days, and then the quantity begins to lessen; the opening gets smaller, and at last heals up. Perhaps in nine or twelve months he gets just such another attack, yet this patient will have no stricture. Abscesses deeply seated in the neighbourhood of the urethra may contain a considerable quantity of matter without the skin becoming discoloured. In consequence of the density of its immediate coverings, it will often be very tense and circumscribed, and contain a great deal more of that foetid, ill-conditioned matter than you would have had any idea of from the apparent size of the swelling. Where it extends forwards on the penis even, it will be hard and without any feel of fluctuation, nor is it elastic, but there will be œdema of the penis. There may be no discharge of urine for some time after opening one of these collections where it eventually does come through the wound; but this will not be always so. When the urethra ulcerates, and the urine gets into the cellular membrane, the case is of a more serious nature. A man, suppose, has had for some time an irritable bladder, and at last he feels a fulness by the side of the urethra. Watch this closely, and open it early, or you will have terrible sloughing. You will be surprised sometimes how deeply you will have to cut in a case of this kind before you get at the matter. You will be several times going to give the attempt up in despair, when you have gone so deep that you do not like to persevere with the knife any longer; but do not hurry yourself, just put in a probe down to the bottom of the wound, and push it gently here and there, and in all likelihood you will at length see a drop of matter which will direct you to the collection into which you can cut directly.

When abscesses form in this region and open externally, they do not always open in the perineum itself; they may extend upwards, towards, or on, the abdomen, or in the fold between the buttock and scrotum, and open in any of these situations. Sometimes the opening in the perineum will extend so far backwards as to be readily confounded, on a superficial examination, with abscess beside the rectum, and when become fistulous, is not always readily distinguished from fistula in ano. When the urethra gives way, the urine may escape into the corpus cavernosum penis, or into the corpus spongiosum urethræ, and the most extensive mischief follow. Here is a prepa-

ration of one of these cases: the urethra gave way, the urine got into the corpora cavernosa penis, and the consequence was, that in twelve hours afterwards the entire of the corpora cavernosa sloughed away; a spot of mortification formed near the symphysis pubis, beside the penis, I wondered what it could be; however, when the slough in the integuments separated, a piece of something began to protrude from the ulcer; I cut a bit of it, and found it was not sloughy cellular membrane, but what appeared to me to be the corpus cavernosum, and this was afterwards rendered certain; here it is in this bottle, and you observe a part of it cut through to show its structure. Now, this man has the urethra, the glans, and the skin of the penis, but nothing of the corpora cavernosa. Fistula in perineo may *sometimes* be caused by stricture, although, as I said, they are not essentially connected as cause and effect. A fistulous opening may form in one side of the urethra, and it may heal up, and then another may form on the other side of the canal, and do the same thing. I have seen, as I before mentioned, from twenty to thirty openings of this kind at once in the perineum, but I never remember to have seen an instance where there was more than one opening in the canal of the urethra itself at the same time.

What is it that prevents the healing of these fistulæ? It is said to be the constant flowing of urine through them. Now, this positively is not the case, and my assertion is proved by the fact, that a fistula in perineo *will* heal without anything surgical being done for it, and while the urine is passing through it to the last. The fact is, it is the morbid condition of the urethra that keeps it open. The form of the fistulous opening itself will often determine its disposition to close or not. When the opening in the perineum is circular, all the art of man will never heal that opening, although the urine may be kept from passing through it for half a century by a catheter. Thus, for example, if a chancre forms near the frenum, and makes its way through the urethra, the opening will be circular, and will never heal. In what cases of fistula in perineo would you decline to perform an operation for its cure? When the constitution is run down by an urinary disease, you must never think of operating. If it is run down by anything else, even by a consumptive habit, it would not altogether deter you from operating for fistula in perineo; but if you operate on a man whose constitution is worn down by an urinary disease, you may, to be sure, succeed in healing the fistula, but you bring on an urinary fever which carries off the patient.

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### LECTURE XXX.

Fistula in perineo (*continued*).—Rupture of the urethra.—Cancer of the penis—Amputation of penis.—Hydrocele.

WHILE treating a fistula in perineo, you are directed by authors on the subject to keep a catheter constantly in the bladder, to prevent

the urine coming through the fistulous openings, which, it is supposed, would retard, if not hinder, the cure; but it often happens that you cannot follow this direction, for while in some cases the bladder can bear the presence of the catheter for a year and a half, in other cases it will bear it perhaps for six weeks, and then an irritability of the bladder will come on, and you find the patient unable to bear it longer, and you must withdraw it; or if you and your patient have courage enough to keep it in a while longer, you will induce sub-acute peritonitis. Sometimes the bladder will not bear the instrument for forty-eight hours, but this may in general be remedied by leaving it out a while, and giving the patient opium. It now and then happens, that when you remove one catheter, and replace it with one of exactly the same size, shape, and materials, made by the same maker at the same time, that the patient will not find it so easy to wear: it will not lie so comfortably in the urethra, although you can see no difference whatever in the two. He gets fond of a particular instrument, and can wear no other with half the ease. Sometimes you replace a catheter with exactly the same kind of one, and the next time the patient goes to make water he cannot pass a drop, or he passes a little, and then it suddenly stops: it is not the gradual lessening of the stream, but it stops suddenly;—well, he lies on his bed for two or three hours, and again tries to pass water, and just the same thing happens, except that he now gets less away than before—you are sent for in a great hurry; you try, but you have as little success as the patient himself in getting away more. This looks a little puzzling, but the matter is simple enough when you come to investigate the matter closely: it is merely owing to the eye of the catheter being on the under or convex side of the instrument, and as the bladder contracts this eye gets against the prostate gland which obstructs the urine getting into it;—all you have to do is to introduce it with the eye on the upper or concave side. Sometimes the patient finds that some urine comes by the side of the instrument through the fistula. This should be prevented, and it can in this way: tell him not to force in making water, but to let it come quietly and without effort. Sometimes you find a case where you cannot pass a catheter, by any means, fairly into the bladder, and, on examination, you find the parts between the anus and the neck of the bladder as hard as a rock, and from this rock several openings give transmission to the urine. Are you to leave this patient without relief? Why, if his constitution be good, you will not. When you cannot introduce the catheter, you are directed to cut down through the perineum and urethra on the point of the catheter, to find out the impervious part of the urethra, to cut through it, and pass on the instrument to the bladder by the inferior opening. Now, the great difficulty is to find this opening, or to find the urethra at all. I assure you, one of the most expert surgeons in the kingdom was an hour and a half cutting here and there looking for the urethra, and was at last obliged to put the patient to bed without finding it; the great difficulty is to find the

urethra. The way I would advise you to proceed, so as to enable you to come on the urethra, is this: keep steadily in the middle line, — take care that you don't let an assistant divaricate the parts as you cut: if he does, you will be thrown out of the proper line, and will be cutting in all directions, looking for what you will not find; the parts will, indeed, separate but badly of themselves: they will even close on the knife — but do not mind; cut down in the middle line until you come on the end of the catheter. In some cases the presence of the catheter in the urethra hinders the wound in it from closing, and you must therefore take it out, notwithstanding the dread you may have of the urethra being very narrow at the seat of the wound. The way I am accustomed to finish the operation is this: — Having come down fairly on the urethra, and cut through it, I seek for the lower opening, and pass a small-sized gum-elastic catheter through it into the bladder: I then seek the upper opening with a probe, and having found it, I just cut off the ivory top of the catheter, and introduce the end into the upper perineal opening of the urethra, and push it up, or push the urethra down on it until it appears out of the orifice at the glans: I then draw the integuments of the wound over it and leave it so.

Now, I would remind you that you must not pertinaciously continue to keep a catheter in the bladder in these and other cases where there is an opening in the perineum communicating with one in the urethra, for, as I said before, you will find that the presence of the catheter itself, is sometimes owing to the refusal of the parts to heal. You may suppose, with some writers on the subject, that it would be impossible for the openings to close while the urine has a passage through them, yet there is no ground for thinking so, and, in fact, we frequently see them heal where a catheter was never employed at all. If you see that in three weeks little or no progress has been made in the healing, take out the instrument, and let the parts heal as they will.

A man, suppose, gets a kick of a horse in the perineum, and loses a part of his urethra, what is to be done here? A man was brought into the hospital who had sustained this accident; a piece of the urethra sloughed clean away; an incision was made into the parts where the continuation of the urethra ought to be, just deep enough to allow a small catheter to lie in it; the catheter was introduced from the orifice in the glans through this cut into the bladder, the skin was drawn over it and it healed; the loss in a portion of the urethra was supplied by a new portion from the surrounding parts. I had but little hopes of success in this case; the man, however, went to the Indies, drank hard there, and, in fact, did everything he could to injure his urethra; yet it is now fifteen years since he was operated on, and since his return he has been but twice in the hospital for stricture, which yielded easily, and he has as good an urethra as any one.

A man gets a rupture of his urethra and infiltration of urine into the scrotum. If there was any urgent desire before the accident to pass water, this subsides, and the patient feels as if he had emp-

tied his bladder in the natural way, and wonders he sees no water coming; the scrotum begins to swell, and soon attains an enormous size; sometimes the swelling in the very first instance is not discoloured, but it quickly gets very red, yet there may be little or no pain in it for some time; of course with the tumefaction the natural rugæ of the scrotum disappears, and it has a shining and somewhat pellucid appearance. In a case of this kind you have no time to lose; — what you must do is — to lay open the scrotum by two or three long and deep incisions, either in front or behind, but carried down to the bottom of the tumefied part. Now, when you do this, knowing the nature of the case, you might expect to see the urine flow out at once, and the tumefaction rapidly disappear, but you need not expect any such thing, for it will not occur. Although the integuments be very red, the raw surfaces of your incisions are pale, and the urine that has distended the cellular membrane of the part dribbles away very gradually, almost insensibly. The next thing you have to attend to is, to introduce a catheter from the proper orifice of the urethra into the bladder; but this is sometimes a very difficult thing in those cases, and you will often have to persevere a long time in your efforts before you succeed. Occasionally you can pass in the instrument with the greatest ease, but it is quite a matter of chance. If your incisions be made properly and promptly, this case may end very well; — the swelling subsides, the wound heals, and there is no further trouble about it; but if unfortunately you are not consulted for some hours after the infiltration has taken place, or have not made your incisions properly, the whole of the scrotum may slough away, leaving the testicles quite uncovered. After a time, however, the surrounding integuments give them a covering as the parts heal, and very little inconvenience is ultimately experienced from what, to one unacquainted with the reparative powers in such cases, might be supposed irremediable.

If the constitution of a patient who has had his urethra ruptured be bad, very alarming, and often fatal consequences follow, and even sometimes when we could not say there was anything particularly wrong in the general habit, of which I will mention an instance. — I was sent for to visit a gentleman who was but eight or nine days married; I found him in great pain, — he wanted to have connection with his wife, but somehow struck his penis with force against the woman's pubis, and a rupture of the urethra was the consequence; he could not pass an instrument into the bladder, notwithstanding the most patient and persevering trials — the patient's agony, and excitement increased, and he got a fever, like the yellow fever of the West Indies, which carried him off. Infiltration of urine seldom or never follows the accident of making a false passage with a bougie, because the stricture, which is behind the perforated part of the urethra, breaks the flow of the urine, and because the false passage is valvular. If an awkward person, however, in making an effort to push a catheter into the bladder (where there is no stricture to obstruct him, as I have known to happen, strange

as it may appear), ruptures the urethra, the false passage made under such circumstances will be more likely to allow the escape of the urine through it, because the force of the current is not lessened by such a barrier as a stricture would present.

## CANCER OF THE PENIS.

*Cancer of the penis* generally occurs after the middle period of life, but sometimes earlier. The patient has at first little uneasiness, complains of no pain, sometimes only an itching in the part; in fact, there appears a kind of stupidity and disregard of his situation about the patient that I cannot account for. It may begin with a phymosis, and certainly most of the cases met with have this complication, concealing for a long time the real disease, until at length the prepuce either sloughs, or you slit it up to examine the state of the parts; or the disease may be at once exposed. If it be a cancer, there will be a warty fungus formed beneath the prepuce, and after a time the penis begins to harden. If I was asked what this was like, I should say it was just like a warty excrescence of the penis, and that is as much as could be told about it. But will this be sufficient to tell me the exact nature of the disease? No; there may be old venereal warts about the penis, and from their appearance you will not be able to distinguish one from the other; before the prepuce gives way, it will often be impossible to tell, for cancer of the penis wants the distinction, between it and other diseases, usually afforded by the advanced age of the patient. When you are enabled to come at these warty excrescences, you may use means to distinguish to a certainty what they may be, by the use of external applications to them, such as astringent washes, savin powder, &c., which, if they are venereal, will remove them in a little time, but produce no effect, of course, if it be cancer. This experiment you are quite right in trying, for no harm can result from it, no matter what the disease may be. Cancer generally begins in the prupuce, sometimes on the glans; the excrescences are harder by a great deal than the venereal ones ever are; you poise the penis on your hand, and if it be cancer, you are conscious of its greater weight. Those warts which we have called venereal, seem more moveable than the cancerous ones, and this is owing to their attachment being narrower, more stalk-like; but their superior weight and unyieldingness to local treatment are the chief marks by which the cancerous excrescences are to be distinguished from all others. Well, when you have satisfied your mind that the disease is really cancer, of course you have nothing left to do but to remove the penis. There are some circumstances, in a case of this kind, that would prohibit the attempt to amputate the organ; as, if the cancerous hardness had extended up nearly to the pubis, if there were any hard and diseased lymphatics on the dorsum of the penis, if there were any enlarged glans in the groin so fixed or so deep that they could not be removed readily, or if the patient's constitution

had been broken in upon by the cancer, you should not attempt to remove the penis. But if you think the case is, in these respects, a fair one for operation, you should not hesitate to do so at once, for it is one of those cases of cancer where the operation of removal is often successful.

In amputating the penis, you were formerly directed to draw the skin backwards before you made the stroke that is to remove the unsound part, that you might have enough to cover the stump, but you must completely reverse this rule, as modern surgery directs you to draw it forwards towards the glans, and to cut as much of it away as you can; for you will find that either the penis recedes, or the prepuce elongates, and that there will generally be too much skin after all; do what you can to prevent it, it will grow on, and gradually encroach on the orifice of the urethra, and may cause very serious inconvenience at a future day. I have seen the superfluous skin removed a second time, but without any permanent advantage, for after a while there was just as much again to be taken away, and probably would have been, only the previous experience held out no encouragement for the trial. You grasp the penis in your left hand, close beyond the line of the disease, and drawing the skin towards you as far as you can, you remove all you intend of the organ with a single stroke of the knife. Even although you tie the chief arteries of the penis, there may be a troublesome oozing of blood from the divided corpora cavernosa penis; you may sometimes have to include four or five particular branches in ligatures, or you may have but one, or there may not be even one, the bleeding from which will demand so much attention. You may, perhaps, have to tie the dorsal arteries, or the arteries of the corpora cavernosa, which you find in the centre of those bodies. Should there be but a general bleeding from the cut surface, it may require decided measures to suppress it, after astringent applications, &c., have been tried in vain; it is obvious you cannot apply compression to the face of the stump, as there will be no resistance from behind, and a *simple* circular compression would close up the urethra. What you have to do, then, is to introduce a catheter into the bladder, or cut off the eyes of one, pass it some way into the urethra, and then apply your bandage, so as sufficiently to compress the penis around and against the instrument; the ligature or bandage should not be a piece of hard tape; it is too unaccommodating; I should prefer candle-wick. After the operation, there is a great tendency in the orifice of the urethra to close, you must therefore keep a catheter constantly in the canal for some time, whether its introduction has been necessary for bleeding or not. The operation, like that for cancer anywhere, may not effect a permanent cure. A gentleman, whom I saw with the late Surgeon Richards, complained of a swelling in his groin; we had reason to know it could not be venereal, and were thinking what it might be, when Mr. Richards suddenly threw the bed-clothes off him, and discovered that the penis

had been amputated, and we learned that it had been done two years before for cancer, which was now for the second time about to show itself.

## HYDROCELE.

The term *hydrocele* is restricted to watery accumulations about the testicle;\* they may be in the bag of the tunica vaginalis testis, or in the tunics of the cord. When we were on the subject of hernia, I had occasion to bring several points in connection with our present subject under your notice, and shall therefore now only proceed with what was then omitted. Hydrocele is by no means an uncommon disease; the progress of its formation is generally slow, but I have known it to happen instantly. A soldier in the infirmary was one day employed carrying coals up stairs for the use of the wards, and he felt as if something burst within him, and immediately a hydrocele was found to have formed. A long time after this the same thing happened to him again, and so sudden was the accumulation, that the bag was full before he could get down stairs; he had undergone the treatment for the radical cure the first time. I do not know how to account for this, or such like cases. The venereal disease sometimes causes an enlargement of the testicle, and a hydrocele of the tunica vaginalis testis. It is of use to know that hydrocele may originate in this way, because the proper exhibition of mercury will cure it, but I will have more to say on this point another time.

Hydrocele is liable to be confounded with other diseases, and with none more readily than with fungus hæmatodes of the testicle. In the fungus hæmatodes there is so perfect a feel of fluctuation that there is no surgeon of experience that might not be deceived in the case. Men of little experience say they can easily distinguish the fluctuation of hydrocele at any time, but here is a preparation of the tunica vaginalis of an old hydrocele so thickened [it was fully a quarter of an inch thick], that it would be impossible to feel any fluctuation in it. If the bag be but moderately distended, a fluctuation may be felt, but if fully so, you cannot feel it at all. Now, you are told that by placing a lighted candle behind it, you will be able, from its transparency, to pronounce it hydrocele; but if the sac be thickened like this, or if a patient labouring under hydrocele gets a hurt in the part, and that an effusion of blood be in consequence mixed with the serum, the light will not be transmitted through it; but there is another deception arising out of this test, by which you might fancy transparency in the tumour where none could exist; the light that goes *round* the surface of the tumour would make even the arm seem transparent, if examined with a candle in a particular way. There is sometimes nothing that will distinctly point out the presence of water in the tunica vaginalis but a slight

\* Not strictly; there is hydrocele of other regions, as of the neck, &c.—*Ed. of Lect.*

puncture with a lancet. When you can trace the case, you will find that the fungus hæmatodes begins in the body of the testicle, while the hydrocele begins below, and the swelling gradually increases upwards: this, however, will only serve in the very beginning of the malignant disease, for it will rapidly extend in every direction. The scrotum will have a livid appearance if the case be fungus hæmatodes, but the skin remains unaltered in colour in hydrocele; in the former, at its commencement, there is no pain, no more than there is in hydrocele, but there is a great deal at a later period. A difference may be sometimes observed in the shape of the two tumours, the malignant one being somewhat flattened at the sides; the other being pyriform. If you squeeze the one in your hand, you give pain, but not so with the other. You can almost always feel a hard rough spot, somewhat depressed at the upper and back part of the swelling of a hydrocele of the tunica vaginalis; this is the only part of the body of the testicle or epididymis which can be felt if the testicle is of the natural size, and the collection of fluid any way large.

The treatment of hydrocele is distinguished into the *palliative* and *radical*; the first is merely letting out the fluid to remove the inconvenience occasioned by its size and weight; the second comprehends certain measures employed to prevent it again accumulating. The first is unattended with any difficulty or danger in ordinary cases; but without strict examination and great circumspection, very serious consequences may result from the latter. Simply puncturing a hydrocele, and letting out the fluid, will, perhaps, in about one case in twenty perform a radical cure. The manner in which the operation is performed is this: you grasp the tumour in your left hand, and make the integuments tense; you then make a little incision through them, avoiding any small veins that you may see in your way; you then take a trocar, and holding the handle in the hollow of your right hand, and placing one or two fingers on the tumour to steady your hand, and prevent the trocar darting in too far, when the resistance of the tunica vaginalis is suddenly lost, you push the instrument through, in the direction upwards and backwards. When you are aware that you have fairly entered the cavity of the bag, you withdraw the stilet, and then push in the canula as much further as may be necessary. Now, the trocar is not always a good instrument to tap a hydrocele with. If you should discover, or have reason to suspect, that the testicle itself is enlarged, you must employ a lancet instead, to avoid any danger of wounding it. When you think proper to use a lancet here, there is one thing you must be careful of; when you take the tumour in your hand, and make the front of it sufficiently tense, by drawing the skin firmly backwards, do not relax or alter the pressure, after you have made your puncture, until all the fluid is evacuated, for if you do, some bits of cellular membrane will be getting through the wound, by the alteration in the relative position of the parts, and if you keep snipping off this as it presents

itself, you may bring the patient's life into danger, by the inflammation and fever that will be excited.

When the collection of fluid in the tunica vaginalis is small, you should always employ a lancet for its discharge in preference to the trocar. It may occur to you that if there was but little fluid in the sac, you have no business to meddle with it; but there are cases where you ought to interfere — for instance, a man with scirrhus testicle may not suffer much for some time, but at length some fluid collects in the tunica vaginalis. This is a common occurrence, and when it happens the fluid forms more quickly than the sac can dilate, without causing much pressure of the fluid on the diseased testicle: the man will suffer great agony, and you must let out even this small quantity; even where the accumulation is unattended with much distress, but if you suspect something wrong is going on in the gland itself, it will be useful to evacuate the fluid, to enable you the better to examine the real state of the testicle.

Of the methods designed to procure a radical cure of hydrocele, Mr. Earle's plan of injection is the simplest and best; but injections will not answer at all times, or in all cases; for instance, the fluid of the hydrocele may be encysted — that is, contained in more cavities than one, not, perhaps, communicating with each other, and this you learn in trying to draw off the fluid; for you find that only a portion of it comes away. In this hydatid state of the tunica vaginalis, as it is called, it is obvious the injection of any fluid for the radical cure would be unsuitable. In this case, then, the best thing you can do is to make a free incision through the integuments and tunica vaginalis, and leave something in the sac to make the parts heal by granulation; if, however, the man is of a bad constitution, if he has a carbuncled face, or a difficulty of breathing on slight exertion, don't meddle with the radical cure by incision; if you do the patient is carried off by a typhus fever, or with symptoms something like tetanus. If you intend to leave anything in the tunica vaginalis, the best thing is a little lint dipped in oil. Old Mr. Dease used to employ for this purpose the common linseed poultice, but as fast as he put it in, it came out, again, and at last he used to bolster up the parts, and send the patient to bed. Should the hydrocele be very large, you should not at once inject it, but merely draw off the fluid, and let matters rest for that time. When the fluid collects again, and is, in your estimation, about a third of the quantity that it was the first time, you may then, if you think fit, proceed for the radical cure; besides the chance the patient gets of there being no return of the disease, you avoid the risk that might attend exciting inflammation over a large surface of the membrane. Having drawn off the fluid, you take a syringe, or a caoutchouc bottle, the pipe of which you previously ascertained will fit the canula, and throw into the tunica vaginalis as much port wine and water as will equal the quantity of the serum you let out or nearly so. This you suffer to remain until the patient gets faintish, or complains of a kind of uneasiness, not

in the testicle, for it is never felt there, but in or about the groin, loins, &c.; when this is felt, you let out the wine and water, or whatever else you had injected. Some patients will bear the injection to remain in for a good while, others hardly a moment; but, in all cases, his sensations must direct you when to let it out. Take care not to withdraw the canula, or suffer its end to escape from the cavity of the tunica vaginalis, until every drop of the injection comes away, for should any of it get into the scrotum, you will be astonished at the terrible effects of inflammation and sloughing that will ensue. After putting the patient to bed it will sometimes be necessary to give him an anodyne. The first night after this proceeding, the patient will not rest as well as usual;—the next day the testicle will be a little swelled and be heavier;—sometimes there is a jelly-like softness about the testicle; keep the patient quiet for ten or twelve days, and he ultimately is perfectly well, as far at least as the hydrocele is considered. Sometimes adhesion between the contiguous surfaces of the tunica vaginalis begins in three weeks after the operation. A slight swelling and hardness may remain in the testicle for several weeks; it is ultimately removed by small doses of mercury and friction of the part. Sometimes the injection will fail in preventing a return of the complaint, and yet things have appeared to go on just as they did in other cases where the radical cure had been effectual. Sometimes it will fail from not being stimulating enough to raise the inflammation to the necessary degree. In this case do no more at present, but leave matters until you have occasion again to draw off the fluid; you may then use something more stimulant, as wine alone, or spirits and water. Sometimes when the inflammation has been so high as to cause suppuration, the hydrocele was not cured after all; but when a radical cure does follow, it may take several months before the man is quite well.

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### LECTURE XXXI.

Hydrocele (*concluded*).—Stone in the bladder—Diagnosis—Medical treatment—Lithotomy.

THE medical, or after-management of a case treated for the radical cure of hydrocele, is sometimes attended with a great deal of trouble, and sometimes, on the other hand, it gives very little, even when the operation has been successful. Even adhesions in the sac do not in all cases result from the successful treatment for a radical cure. Sometimes, with the hydrocele, there is a slight enlargement or tenderness of the testicle. In this case the injection may be used for the radical cure, but not the treatment by incision. This is the preparation of a case where fluid was contained in the tunica albu-

ginea, as well as in the tunica vaginalis, and the testicle was so much diseased that the radical cure was not attempted, and probably if it had been, would have failed. When the fluid used for the injection escapes into the scrotum, you cannot, as I said before, conceive what terrible symptoms occur; it is not easy to conceive anything more dangerous. I saw a case once with Mr. Obrey, in which there were two hydroceles; having tapped one in the usual way he threw in the injection, but when he thought to get it out again, it had disappeared, and neither he nor I could tell where it went to, but it did not come back. Well, he tried the same process with the other hydrocele, and the very same thing happened—in neither did the injection ever return; the man, however, suffered nothing, nor were his hydroceles cured, for I tapped him repeatedly afterwards. You will more frequently fail to cure a hydrocele of the cord radically than one of the tunica vaginalis. In an officer on whom I performed the injection for the radical cure of hydrocele of the cord, the inflammation was moderate, and was subsiding when a fresh attack of the inflammation came on and ended in suppuration, yet in nine months he came back to me just as he was before; in fact, the inflammation was too high for the adhesive process.

As a very high degree of inflammation is not necessary to the radical cure of hydrocele, and, as I observed, if the inflammation runs too high, it may even be a cause of failure, you will exercise your vigilance in checking any excess of inflammatory action by the usual means in analogous cases, such as leeching, cold or warm applications, attention to the bowels, and anodynes, if necessary.

#### STONE IN THE BLADDER.

*Stone in the bladder*, which we now proceed to consider, does not appear to be so frequent an occurrence in this country as in some places on the continent; it is, however, common enough here to be a subject of the greatest importance to the operating surgeon. It will not be necessary for me to enter minutely into the different calculi found in the bladder and kidneys—you will find them in every work on this subject and on chemistry; but there are circumstances connected with the nature of the calculus with which you ought to be acquainted. Some varieties attain frequently a very large size, as the *triple phosphate*; while there are others, as the *oxalate of lime*, which are generally small; some, as this last, are very rough on their surface, and produce a proportionate degree of irritation in the bladder, and of suffering to the patient during the progress of their formation; others give comparatively little trouble on account of their smoothness, as the *bone-earth* species. It is observed that there are some kinds, as the lithic acid, more likely to be reproduced after lithotomy than others (as the mulberry), a knowledge of which enables the surgeon to make a better prognosis as to the chances of relapse. Many of these calculi are found to have formed round a foreign body by some accident introduced into the bladder, such

as a clot of blood ; here is a preparation which shows the nucleus to have been a sally switch, which the poor man had been using as a bougie, but a piece of the top broke off and remained in the bladder ; in this preparation you observe the nucleus is a quill — the case was that of a female who got retention of urine in parturition, and the attendant accoucheur, having no catheter about him, introduced a quill, with another thrust into the end of it to make it long enough, to draw off the water, and the woman using the same instrument herself afterwards, without proper precaution, unfortunately left one of the quills in the bladder, a calculus formed round it, as you perceive, and she had to be cut for the stone. Calculi form in the prostate gland, and on examining the bodies of such as had had them, you always see one-third of it sticking out into the urethra uncovered by the gland ; one of these prostatic calculi may form a cyst for itself, and after nine or twelve months cause retention of urine.

A calculus, either from the bladder or prostate gland, may be forced by the current of urine into the urethra, and may escape ; but sometimes they lodge in the canal : — now, if a calculus does remain in the urethra, what are we to do, — should we cut it out ? sometimes not ; — a child, suppose, is observed to become uneasy — it strains much to make water, but cannot get out more than a few drops, — he strains still more, and the same result follows ; — you can feel the calculus in the urethra, and the penis is quite rigid ; — now, here I would not be in any hurry to operate : — I would wait, perhaps, even three days ; — throw up injections — stupe the perineum, and give an anodyne if necessary ; the stone is coming forwards, and will probably be discharged, but if you are in a hurry to cut it out, you will have a fistulous opening there, which may take a long time and much trouble to cure, and perhaps leave a disposition for contraction of the canal of the urethra, or some other morbid tendency, for a future day.

The signs by which the presence of stone in the bladder is to be recognised, have been classed by writers into the *rational* and the *positive* ; but although symptoms give us rational grounds to suspect the existence of the complaint, there is no one symptom that will tell you positively that there is a stone in the bladder — not one that you can rely on ; even an examination with an instrument may mislead you, although it is called the positive test. A stone may be there, and after repeated trials you may not be able once to feel it ; you may, on the other hand, have all the sensation communicated to your hand that striking a solid instrument against a stone would give, and yet there be really no stone at all in the bladder. Now, a patient afflicted with this complaint may tell you that for a long time he has been troubled by darting pains, or some other kind of pains in the loins — that the pain shifted its situation, and that on one or two occasions, perhaps, a small bit of stone or gravel has been discharged with his urine soon after the attack of this fit of the gravel ; — he found that sudden exertion was often followed by one of those

fits of his complaint ; — that of late his fits of pain were more frequent ; sometimes they are referred to the bladder itself, but more frequently to the top of the penis, and it is a curious circumstance that both old and young people, when they have this pain, draw out the penis violently, and seem to get some relief from it, and hence it is that they frequently, from this habit, have the prepuce very much elongated, and permanently so. If it is in a female, you will often find the labia or other folds about the pudendum elongated in the same manner. Your patient will tell you that he passes his urine without much difficulty or uneasiness until the bladder is more than two-thirds emptied, but that then extremely severe pain comes on — he leans forward and strains much to get the business over quickly, that he may lie down and endeavour to get a little ease by remaining quiet for a time, but he soon learns that this posture and exertion will not answer, for that *suddenly* the flow ceases altogether, although he knows that there is yet more urine remaining to be passed, and yet not a drop will come ; all this time he is in great agony, and at length, tired and exhausted with pain and exertion, he lies down or changes his position in some way, and presently the urine begins to flow again. Now, it sometimes occurs that a man will have these paroxysms after considerable intervals — he may remain even a year or more without much the matter with him, and then they all recur with their first violence ; in this case we might suspect that the stone had become encysted during the interval, and had somehow got again into the cavity of the bladder. To show you the possibility of such an occurrence, here is a preparation of a bladder with one of those offsets or cysts, and you observe that the opening by which it communicates with the general cavity of the bladder is small enough to prevent the escape of a stone which had filled the sac.

Now, are these symptoms peculiar to stone ? — indeed they are not. There is one disease I have noticed particularly in females, which, from mere symptoms, could scarcely be distinguished from those of stone, if at all ; — she will have a frequent desire to make water, and will be up every quarter of an hour during the night trying to pass some — she will have intolerable pain, and will make such violent strainings, that even some drops of blood will come occasionally. Now, I have seen patients suffer from this affection not merely for weeks or months, but for six or seven years, and the most extraordinary part of the matter is, that at the end of this period they will be in as good health and flesh as they were at its commencement ; yet here there is neither stone, nor stricture, nor diseased prostate, to lay the symptoms on.\* Besides such cases as this, there

\* Mr. Colles and I met in consultation on a case of this kind some years ago ; it was a young lady, twenty-three years and some months old, of a very lively disposition before the commencement of her disease. I had sounded her bladder two or three times carefully without discovering anything ; Mr. Colles and another eminent surgeon in Dublin did so likewise with the same ill success, when, after three years of constant suffering, she handed me one morning a small nail that she said she had passed from the bladder during the night, and was greatly de-

are others that may simulate the rational symptoms of stone ; if there should be a morbid growth from the inner surface of the bladder, particularly near the neck of it, such, for instance, as the one of fungus hæmatodes I showed you, and others of a different description, of which you see examples in some of these preparations on the table, the urine may come freely enough at first, and suddenly stop when its current forces the morbid substance against the opening of the bladder into the urethra ; in fact, many urinary diseases may very much resemble these common symptoms of stone.

Now, having from symptoms such as these suspected the case to be stone, you proceed to sound the bladder ; in your choice of a sound never select one that has wood or other substance except steel in the handle — let it be one solid piece of steel from handle to point, for if bone or wood be held in the hand it will deaden the sound of the stone when the point strikes it. It will sometimes happen that the first or second time you sound the patient you will feel the stone very distinctly, but in as many subsequent trials you cannot detect anything like it ; well, you introduce your finger into the rectum, and you press its point forwards towards the sound ; you cause the patient to vary his position, and you turn the instrument in every direction, yet you cannot detect anything solid — what are you to do ? withdraw the sound, and introduce a silver catheter, with your thumb on its orifice, and try if you can feel the stone with it while the bladder is full — if you cannot, let the urine flow out through the catheter, and when it has all, or nearly all, come away, you will perhaps feel the stone pressed against the end of the instrument as the bladder contracts. I recollect being in consultation on a case of stone, where four of us tried repeatedly with the sound but could not find the stone : the surgeon in attendance, however, had felt it before we were called in, but had now as little success as the rest of us ; he, however, was positive he had felt it at one time ; well, the patient died, and on examination after death, *two* stones were found in the bladder ! — there is a case where, in default of the *positive* symptom, we did not venture to operate ; yet the chances of our finding the stone by means of the sound, appeared really twice as great as they would be in the great majority of instances. Now, might we have all the sensations of a stone communicated by the sound, when there was no stone ? Here is a preparation of a diseased, indurated bladder, and I am convinced if you struck one or two points on its interior surface with a sound during the man's life-

lighted at the occurrence, as she said she would now have no more complaint. I was more than half disposed to indulge in the same hopes, but the disease was not in the least abated ; it went on for a year and a half afterwards, when one evening she suddenly ran to an open window and threw herself out, and received such injuries that she died a few days afterwards. I was not permitted a post-mortem examination. In a conversation with Mr. Colles, in consultation on another of these cases, he told me he never found any treatment to do it the least service. One of these patients, he said, had, in despair, tried matrimony, but even that proved as ineffectual as everything else.— *Ed. of Lect.*

time, you would be in great doubt whether it was not a stone you touched. There is a curious state of the bladder which I never met with but in two living persons ; it is this — the inferior fundus or floor of the bladder was coated with a thin layer of calculous concretion ; — now, this would give, of course, the exact feel that a loose calculus of the bladder would give ; but I need not tell you that an operation could give these men no relief whatever. Both the patients to whom I have alluded got quite well of their complaints — contrary, I must say, to my expectations.

Various medicines have from time to time been recommended with the view of chemically acting on the calculus, so as to dissolve it in the bladder, and so render an operation for its removal unnecessary, and numerous secret remedies have had their day of celebrity as never-failing lithontriptics — even enormous sums have been paid by national grants for the disclosure of the composition of some of them. When the analysis of urinary calculi became well established, scientific physicians and chemists joined their knowledge to attain the same object. Now, with respect to this line of practice, I will only state one fact. I had a young man in the hospital who had stone, and who was very anxious to be operated on for its removal ; the state of his health made me not ambitious to undertake the operation ; he passed particles of the calculus, which I sent to Mr. Garnett, then professor of materia medica here : he analysed them, and sent me word that it was a favourable case for the use of acids — well, I tried acids, and the patient's symptoms got *worse* ; I then tried alkalies, and he got better under their use — however, at his earnest solicitation, I operated on him, and the analysis of the stone proved that it was of that kind for which acids are recommended ! A stone may be in the bladder for a long time without giving much or any pain — I knew a child who had stone, yet he used to go to school, and play, and be as busy and active as any of the boys, and he grew up like the rest of the children, yet this child was for so many years unconscious of the presence of the stone, except now and then when he would have, what his mother called, a fit of his complaint ; — it is such cases as this that have from time to time given a celebrity to quack medicines for dissolving stone in the bladder. Pouches or sacs do sometimes form in the bladder, as I showed you, but they are of very rare occurrence ; here is the only example in the College Museum. Sometimes, instead of one, there are two or several calculi — sometimes to the number of ten in the bladder ; if a stone was to become sacculated, the urgent symptoms of the complaint would cease immediately, and if the individual in whom this occurred was taking any of those favourite lithontriptics, we might talk until doomsday of the folly of trusting to them, but no one would believe us, unless the stone slipped out of its sac, and renewed the painful evidences of its not being dissolved.

I mentioned that it is no very uncommon thing for particles of calculous matter to be voided from time to time by those disposed to stone in the bladder, and it has been conceived advantageous to en-

deavour to remove those small calculi through the urethra, before they could have time to enlarge too much for the passage, by the addition of further calculous deposits; Sir A. Cooper has invented this instrument in my hand for cases where, in old men, there is not one large, but a number of these small stones in the bladder — it is shaped like a sound, but when introduced into the bladder, by pushing a spring, it opens, and allows a stone to fall between its blades, it draws it out through the urethra; in these cases the urethra is often large, and the instrument is of good size and very ingenious; but suppose it seizes a calculus the size of a nut, and of an angular shape, when you bring it into the urethra you must not let it go until you bring it entirely out, and perhaps it tears the passage through its whole extent. Now, by this proceeding you give as much pain, and bring the patient's life into more hazard than the operation for lithotomy would do, if performed by a surgeon of ordinary dexterity — for it induces a high degree of urinary fever which may carry him off; it is, however, a valuable instrument, but it will only apply to calculi which are smooth and easily extracted. There is a circumstance connected with the use of this instrument for which I cannot account, but which I have twice witnessed in men on whom I tried it, and who were not people to complain without cause — viz., that when I was letting go the spring, and the blades were closing, they complained most violently of the shock the instrument gave them. It has been said that this instrument will serve to break stones in the bladder — I have tried to break the softest chalk stones with it — so soft that you could cut through them as you would a piece of chalk, yet was only able to take off the slightest scrape once in ten trials. We shall now proceed to the operation for the extraction of the stone — or *lithotomy*.

[At this part of the lecture, and before the operation was demonstrated on the dead body by Mr. Colles, an Italian surgeon, named, I think, Pacheoli, was introduced to the class, one session, to explain the mechanism and *modus operandi* of an instrument he contrived for lithotritry. It consisted of a *straight* steel catheter, which enclosed in its canal another tube having a stilet. It was so contrived that on pushing down the tube as far as it would go, its extremity opened into three arms designed to seize and hold the stone; on then pushing down the stilet, a rasp or coarse file was pushed in a diagonal direction on that surface of the calculus within the grasp of the arms next the catheter, and by means of a steel bow, or a crank handle (whichever the operator pleased), the rasp was made to revolve round the stone; and as the latter diminished in size, and the arms that held it continued to approach each other, the rasp merely became more and more in a line with the axis of the catheter, but received no check to its operations until the whole calculus was ground or rasped down into powder, as fine as hair-powder. The inventor first exhibited its effect on a piece of chalk, which seemed complete in fulfilling its intention, and with great rapidity. He next introduced the

instrument into the bladder of the *subject*, and (notwithstanding its being necessarily quite straight) with apparent ease : the stone, previously placed in the bladder, was soon caught between the arms of the instrument, and the process of grinding, or rather filing, was commenced. I was beside the operator, and it appeared to me at the time extremely well calculated to achieve the reduction of a calculus ; the only difficulty I saw was the introduction of an instrument, without any curve, into the bladder of a living man, but Mr. Pacheoli assured the class that practice would speedily reduce this difficulty to nothing. It certainly appeared easy enough to *him* on the dead body.—*Ed. of Lect.*]

Mr. Colles then continued — Several methods of performing lithotomy have from time to time been recommended, and various instruments contrived for different stages of the operation, either with the view of rendering the necessary steps more easy and expeditious, or more frequently, it would appear, to increase the security from cutting parts which should not be injured, and escaping the mischiefs that might attend a want of sufficient anatomical knowledge or an unsteady hand ; as a general rule, the fewer instruments used in any operation the better, and any one with an adequate knowledge of the anatomy of the parts concerned in lithotomy, and who feels sufficient confidence in his hand (and none others should ever perform lithotomy), will rarely require more than a scalpel, a grooved staff, and a forceps.

The table on which the patient is placed, should, I think, be a little higher than that generally employed ; you would feel more at ease, and have greater command of your knife at a critical moment with a higher table. The patient being properly placed, and the perineum shaved, you introduce the staff — this should be of a large size, and the groove closed at the point ; some advise you to entrust the staff to an assistant to hold, during the first steps of the operation, but I would advise you by all means to keep possession of it yourself — your left hand is not required to make the skin of the perineum tense, as the divarication of the thighs makes it sufficiently so ; — hold it with your thumb and fore and middle fingers, and strictly in the middle line, not, as some direct, with its convexity pressing to the left of the raphé, and keep it well up to the arch of the pubis. You commence your incision a little below the arch of the pubis, and continue it downwards and outwards to midway between the tuberosity of the left ischium and the verge of the anus ; this incision should be free, to facilitate the succeeding steps of the operation by giving plenty of room ; nothing of importance can be injured at this stage : if the stone be very large the rule will be found important. You commence your second incision about half an inch below where you began the first ; in this you will divide the transversalis perinei muscle across and the artery that accompanies it — also a few fibres of the external sphincter ani and levator ani muscles, and a portion of the triangular ligament ; you then introduce the knife into the

groove of the staff, where it lies in the membranous part of the urethra : this part of the canal, you will remember, lies behind the bulb — a little better than an inch below the arch of the pubis, and about two inches above the tuberosity of the ischium, and it is covered by a ligamentous production derived from the triangular ligament — the depth of this spot from the surface will vary according to the quantity of fat through which you have had to cut — in fat subjects the blade of your knife will be entirely in the wound, and even sometimes concealed entirely from your view, so that these points of relative anatomy will be the more necessary to keep in mind. As soon as you have pierced the membranous part of the urethra, and feel the point of your knife grating on the steel, move its point a little from side to side, to be certain you are in the *groove* of the staff, as you might otherwise make a very serious mistake ; you have all this time held the staff perpendicularly, and when you are sure the knife is in its groove, you should, without altering the position of your left hand, push the knife so as to cut about a quarter of an inch of the membranous part of the urethra, which will much facilitate the subsequent proceedings. You have now the most difficult part of the operation before you — namely, the division of the prostate gland and neck of the bladder on the left side. We will consider the relations of the parts, and the proceedings to be followed, with reference to the position of the patient as he lies on the table ; the parts you have to divide lie in a different position from those with which you have had to do already — they lie, in fact, behind the arch of the pubis, and you are to enter the bladder in the line of its axis — that is, nearly in the direction of a line going from the point of the os coccygis to about the umbilicus, you therefore now lower the handle of the staff towards yourself, making it move on the point of your knife, which you still hold horizontally, and by this motion of the staff, it is the *back* of the knife which comes to be lodged in its groove, and as the knife is to follow the new direction of the staff towards its point, you depress the handle of the knife to follow the back of the staff upwards ; now, some have advised that the knife should be made to follow the motion thus given to the staff, into the bladder, or, in other words, that instead of moving the staff first on the knife, and when properly adjusted, then moving the knife on the staff, and following its course into the bladder, that both should be moved forward together ; a very dexterous surgeon may do this, but to one of a different description it might change insensibly the direction of the knife, and send it perhaps between the prostate and rectum, or into the gut itself. Old Mr. Dease, who was fond of this latter mode, was in the habit of constantly performing the motion his hands would take in this manœuvre ; even at the dinner table, while speaking to some one, he might be often detected moving his knife and fork, as if pushing the scalpel and staff on together, without thinking of what he was doing. Before you begin to push your knife along the groove of the staff into the bladder, you lateralize it — that is, you turn its edge outwards towards the left ischium — you then, keeping its

handle very much depressed, push it on until you have it fairly in the bladder, and this you ascertain by the flow of urine from the wound; you then complete the incision of the prostate gland and neck of the bladder to the necessary extent by withdrawing the knife, cutting downwards and outwards, taking care to avoid the rectum below and the pudic artery which lies on the inner side of and close to the tuberosity of the ischium. You now pass in your finger to examine the condition of the parts — and then introduce the closed forceps, with its *handles* horizontal, into the bladder, and search for the stone: this you lay hold of, and withdraw with an up-and-down motion of your hand, in the direction of the axis of the pelvis. Should the stone be broken in extracting it, you must wash out the pieces with a large syringe, the pipe of which must be three or four inches long: — they should not be left to the chance of being discharged with the urine through the wound. After extracting the stone you introduce your finger into the opening you have in the bladder, to search if there may not be a second there. Some advise this search to be made with the forceps when it has the first stone it catches within its blades.\* The patient is then to be put to bed, and his knees kept bound together.

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## LECTURE XXXII.

Lithotomy (*continued*).—Diseases of the rectum—Scirrhus-contracted rectum—Ulcer of the rectum.—Fistula in ano.

THE operation of lithotomy, which I showed you at our last meeting, is almost the only one practised here at present. As respects the number of instruments employed, and the time occupied in executing it, it is the simplest of all the methods devised for extracting a calculus by the perineum; it is peculiarly adapted to very young persons, on account of the size of the urethra, which would hardly be sufficiently large to admit a staff or conductor, necessary for the secure introduction of other instruments invented for cutting the neck of the bladder and prostate gland. In fact, to the surgeon who is intimately and practically acquainted with the anatomy of the parts, it may be considered the operation best adapted to ordinary cases; but if the operator has not sufficient confidence in his anatomical

\* The forceps by which the stone is extracted must be of some substance, and must of course add a good deal, in its own bulk, to the size of what is to pass through the incision in the bladder; to diminish this bulk, and for another reason not less important, an instrument was contrived, where the immaterial thickness of a silk bag was all that would have been added to the size of the calculus. In the year 1825 I witnessed a trial of this invention, by one of the best operators I ever saw, and who was a full quarter of an hour endeavouring, in vain, to get the stone into the bag—it had to be laid aside for the forceps, which immediately extracted the stone.—*Ed. of Lect.*

knowledge and dexterity of hand, there is perhaps a safer method at his command — namely, the use of this cutting instrument, called a lithotome, and this director. These were invented by Mr. Daunt, an eminent surgeon of this city, many years ago; they were improved by the late Mr. Dease, and brought to their present state of perfection by Mr. Peile. Besides the scalpel and staff used in the ordinary operation, there are two others — a knife of this form, and a straight conductor. The mode of using them is this. Having introduced the common staff into the bladder, you commence your incision into the perineum, and open into the membranous portion of the urethra in the usual way, and having divided it and some of the anterior part of the prostate gland, you lay aside the scalpel, and introduce this straight conductor into the opening in the urethra, get its beak into the groove of the staff, and pass it on into the bladder in the same direction as the knife went in the former case; when you are sure it is in the bladder, as will generally be indicated by the urine running out by its groove, you withdraw the staff, and holding the conductor steady in your left hand, and keeping it firmly pressed upwards against the arch of the pubis, for the purpose of the better avoiding any risk of wounding the rectum, you take the lithotome in your right, and fix its beak into the groove of the conductor; having given it the necessary lateralization, you push it into the bladder, cutting the prostate and neck of the bladder to the requisite extent as it enters: you then withdraw it in the same direction as you entered it by the conductor. You can hardly wound either the rectum or pubic artery with these instruments. When the division of the neck of the bladder and prostate is affected, some pass in a blunt gorget on the conductor, which is then withdrawn, and the forceps conducted in the hollow of the gorget into the bladder. Should you find that the lithotome has not made a sufficiently free incision, you replace its beak again in the groove of the conductor, and by *depressing* your hand or the handle of the lithotome, more than you had done the first time, the incision will be enlarged. In all cases the more the handle is depressed at the instant of introducing Mr. Peile's knife into the bladder, the larger will be the incision into it and the prostate gland.

After cutting for the stone, the chief thing you have to apprehend is inflammation. The urine will have to come through the wound for several days — but suppose on the second day after the operation you find some urine coming away by the penis and very little by the wound, is this a good sign? It is not — it is too soon for it to take its natural course, and something wrong, perhaps commencing inflammation, is going on in the wound, and you will require to watch it closely.

A troublesome degree of hemorrhage sometimes follows the operation of lithotomy, and you should be prepared with the necessary means to suppress it; you see blood coming from the wound, but are unable to distinguish any particular vessel from which it comes — you cannot, as in ordinary cases of bleeding from surfaces, plug up the wound you have made, for you would, of course, by such a pro-

ceeding, prevent the free escape of the urine, which would be attended with the greatest danger; — what you are to do, then, is to pass the end of a large catheter or tube of some kind through a piece of fine sponge large enough to give adequate pressure to the interior of the wound all round — this you push into the wound, and leave it there until there is no longer dread of the return of the bleeding — the canula, in the meantime, permitting the ready discharge of the urine from the bladder.

## DISEASES OF THE RECTUM.

The rectum is of all the intestines most frequently afflicted with disease of its own structures, and, on account of its connections and situation, most liable to sympathise with affections of other organs. The first of its diseases of which I shall have to speak is *scirrhus rectum*, or *scirrho-contracted rectum*, as it is called. Why, this condition of the gut is called scirrhus, I am sure I do not know, for in its nature it is as remote from cancer as any two things can be. There is no pain felt in its approach — so far from it, that many people cannot tell when it first commenced, and very often it is far advanced before recourse is had to surgical advice; it is not at all a painful disease, at any period of its progress in general, while true cancer of the rectum is attended with the most dreadful pain and suffering that you can conceive; it is, no doubt, hard to the touch, but many instances of morbid hardening of parts will occur to you, that nobody ever thought of calling scirrhus; but besides this, there are several other well-marked distinctions which will strike you as conclusive.

Many persons are able to tell the precise period when this disease made its first attack with them, or at least fancy they can; others can only say that they have been for many weeks, or months, or years, as the case may be, subject to it; and different accounts will be given as to the exact symptoms by which they first became cognizant of its existence, or the time when it first attacked them. The symptoms often are these; — the patient gets costive in his bowels — he takes some opening medicine, but without effect — he takes another dose, still without effect — at last the bowels yield, and a sort of diarrhœa comes on, and from this the patient generally dates the beginning of his complaint. Sometimes it is set down to other causes; for example — a man, suppose in the army, on foreign service, gets the dysentery of hot climates, his bowels do not afterwards return to their natural state, and scirrho-contracted rectum supervenes. This disease has one very peculiar symptom — the patient has frequent desire to evacuate his bowels, and strains a good deal, but no fæces come — what he passes is something like mucus, not often mixed with blood, although it sometimes is — when he does pass any fæces there is violent pain — he passes it with great straining, any the stools are figured; the number of these stools are seldom less than from seven to twelve in the twenty-four hours — the greater number being without any fæces, and a great deal of flatus being dis-

charged with them during the continuance of the disease. When he does pass *fæces* he feels great relief. Sometimes, after passing a good night with a quiet rest, he gets up in the morning and goes to stool, and passes some of this mucus — on any exertion, such as coughing, sneezing, laughing, &c., some of this mucus escapes involuntarily. This goes on for a considerable time, and at length his constitution begins to break down, and hectic fever sets in, which, although fully formed, is more marked by profuse night sweats, than by midday or evening exacerbations; under these the patient at length sinks, as it were exhausted. Sometimes, before this takes place, the rectum ulcerates above the stricture, the *fæces* gets into the cavity of the peritoneum, and the patient is carried off by peritonitis. After death the muscular and mucous coats of the rectum are found very much thickened, the peritoneal coat remaining in its natural state.

Abscesses often form about the rectum, and these end in fistulæ; these openings may number from one to fifteen. This miserable state may last for years, and yet his health be not much injured. Without examining with the finger per anum, there is one symptom which, when it exists, will tell you at a glance that he has scirrhus-contracted rectum — viz., you see at the verge of the anus, either at its posterior part, or at either side, a projection very like in shape the lip of a cream-ewer; — when you see this you may be sure he has this disease of the rectum; but I have seen cases of it without this appearance on some occasions, so that its absence will not prove anything. On introducing your finger into the gut, you may find the obstruction just within the verge of the anus, or from that upwards as far as you can reach; you feel a ring with a sharp and very hard edge projecting from the surface of the gut: — sometimes the whole inside of the rectum is hard, and occasionally tuberculated, and as you pass up your finger, you are sometimes able to feel with its extremity the exact termination of the disease. In the advanced stage there is often an uneasy feel about the sigmoid flexure of the colon — this, however, is caused by flatus. In women, the disease often makes its way through the rectum into the vagina, and *fæces* are voided through that canal.

Scirrhus-contracted rectum is generally found under the age of thirty, and often much earlier; I attended a pupil of mine who died of this disease, and he had it from the time he was six years old; I have not met an instance of it at or beyond the age of sixty years. Scirrhus-contracted rectum might be confounded with true cancer of the rectum, which, in some respects, may, perhaps, resemble each other at first, — but if it is cancer, the patient will have the leaden cast of countenance, with severe lancinating pains darting through the hips and pelvis into the groins, and in a few weeks ulceration of the bowel, which will clear up all doubt. Scirrhus of the neck of the uterus and vagina, and diseases of the prostate gland, might, either of them, be confounded with this contracted rectum, but manual examination will detect the true nature of the malady. Ulceration of the rectum

(which I will speak more particularly of another time), might be confounded with scirrho-contracted rectum, but if the ulceration be low down, a speculum ani will show it, and there is besides severe pain in evacuating the bowels in the case of ulcer, while in scirrho-contracted rectum there is difficulty, but no pain; — the finger alone will hardly detect these ulcers of the rectum satisfactorily. *Spasmodic* stricture of the rectum has been mentioned by writers, but with, not inconsiderable opportunities, I have never seen a case resembling the spasmodic stricture of the rectum, of authors.

How are we to treat this disease? — We are told that it often comes from a venereal affection, and that mercury is the cure — now, respecting mercury, I can tell you that I tried it with a very free hand, as recommended by Morgagni, and I never knew it to do the least service; I may say the same of cicuta; — purgatives have been recommended — you certainly must occasionally give an opening medicine in this disease, but avoid violent ones, which would, beyond a doubt, aggravate it; — the very best thing I have found to give relief is an occasional injection of mucilage of gum arabic; — and the medicine I have found the very best to give relief, and sometimes to cure the disease, is blue pill and Dover's powder — but the mercury must not be pushed to salivation. I have tried arsenic and other remedies said to be of service in cancer, and have found them all alike useless. I have seen the rectum cut for fistula while affected with this disease, but the wound did not become a cancerous ulcer, nor did anything unpleasant result, except a large wound; and here I may mention, that although fistulae do now and then occur with scirrho-contracted rectum, the majority of these cases are unaccompanied by them.

It has been advised by writers to introduce a bistoury into the rectum, and to divide the callous ring, first on one side and then on the other, but depend on it, this practice never hastens the cure, and if the constitution has become affected before such an operation is undertaken, this division of the diseased structure invariably hastens the patient's death — after the operation they die in a few days, whereas had it not been performed, they might have lived eight or twelve months longer. Bougies have been advised with great confidence by authors for the cure of this disease, and I'll tell you what I know of the matter — I have had under my care some of the patients of those very authors who advise the bougie, and I found they had entirely mistaken the disease of their patients. The truth is this, — any irritation of the bowels will cause the ordinary symptoms of scirrho-contracted rectum, such as mucous stools, sometimes with pus or even blood, and when the surgeon introduces his finger, and feels no disease, he feels higher and higher, and still feeling nothing, he introduces his bougie — and up this goes very easily until it hitches against the promontory of the sacrum, and then he thinks he has got to a contracted portion of the rectum. Then as to the appearance assumed by hardened faeces, called figured stools, if nothing solid comes from the bowels of larger

size than a slug or an earth-worm, or altered in its cylindrical figure, he thinks there must surely be stricture of the rectum, although any irritation of the bowels will cause these figured stools. I have tried soft bougies of wax, and hard ones of wood; I have used various ointments that have been from time to time advised—I have gotten bougies turned, with a spiral groove in them to hold the ointment, for without some such contrivance it would have been wiped clean off by the sphincter as it entered—I have used bougies, positively the size of this bottle [about one and three-quarters of an inch in diameter], and have never cured a scirrhus-contracted rectum, except some very insignificant cases. We are still in want of a cure for the disease.

I have alluded to *ulcer of the rectum* as one of those things that might be confounded with scirrhus-contracted rectum;—this ulcer is unconnected with any other disease of the part, and is situated a short distance above the verge of the anus;—the patient has for some time observed his linen stained by a thin purulent matter, sometimes tinged with blood, which often comes away from the anus, even when he is not at stool—the quantity is sometimes more than at other times,—when it lessens, the patient's sufferings are much aggravated, and when it again increases he gets great relief;—he suffers a sharp pain at stool, and for an hour or two afterwards;—this ulcer might be mistaken for cancer, but you will observe that although its edges are hard and raised, its bottom or centre is soft. The treatment you are to adopt for this ulcer of the rectum is—to introduce into the gut a convex-edged scalpel and make an incision through the entire length of the ulcer, continuing it through the sphincter, and dividing the verge of the anus;—as soon as the wound you have made suppurates, dress it and the ulcer with lint smeared with some stimulating ointment, and the occasional application of nitrate of silver;—it at length heals, although but slowly in general.

People who place reliance in names may be led into error as to the real character of this complaint by the name it has generally received; but there is nothing malignant in it. Recollect there is scarcely one of its symptoms, not including those discoverable by manual examination, of course, but may be observed in other affections of the rectum, or of the bowels generally.

#### HÆMORRHOIDS.

In speaking of piles, two things very distinct in their nature, treatment, and consequences, are frequently confounded with each other—namely, hæmorrhoids and hæmorrhoidal excrescences;—the former are nothing but a varicose state of the veins at the verge of the anus;—for months the patient may feel no uneasiness whatever, and then will come on what is called a “fit of the piles;” when this fit comes on, the pulse becomes inflammatory—there is some fever, and great local uneasiness; the patient suffers parti-

cularly after passing a stool, not merely from the passage of hardened fæces over the inflamed and excessively tender part, but chiefly from the involuntary and violent spasm of the sphincter ani muscle on a number of tumours about the rectum, of a bluish colour, and extremely tender to the touch. From the appearance of these tumours, you would expect that they were full of blood — they seem quite turgid, but they really contain none, for if you make an incision into them you find their contents coagulable lymph, with perhaps here and there a trace of blood — all contained in a bluish capsule; — the fit is nothing but an inflammation of the veins, such as you sometimes see in varicose veins of the legs, and it often ends by a giving way of the vessel and discharge of blood, sometimes in considerable quantity; immediate and complete relief usually follows this bleeding, and not alone of the local pain and irritation, but frequently of severe headache or other general annoyances to which people subject to these attacks are very liable, previous to the coming on of the fit itself. These piles are met with in sedentary people generally, whose bowels are usually in a costive state; — should the inflammation be high, apply leeches to the parts, and keep the bowels soluble to prevent the blood from being retarded by collections of hardened fæces in the rectum. You are not to use purgatives to excess, nor those of a kind likely to irritate the rectum particularly — an electuary of sulphur and cream of tartar will answer the purpose very well. Several kinds of ointments have been advised, to smear the tumid piles, but they do no good. The other affection of the verge of the anus, called hæmorrhoidal excrescences, but which have really no connection with piles, — we shall speak of another time, and shall therefore only observe here, that I had once an opportunity of examining the structure of these tumours in one who had died of another disease; I found three blood-vessels, each as large as a crow-quill, running for some way down the gut, and then dividing into a number of branches, which ramified very profusely, and each vessel, by the interweaving of its branches, formed one of these tumours; they were only covered by the mucous membrane; — from this you will perceive that the names they have received are not very appropriate. Many people subject to regular attacks of piles once or twice a year, are so sensible of the advantage they derive to their general health from the bleeding, that if the usual period passes without their fit, they become very uneasy in their mind, lest something of a worse description should be brewing in their system. Obstructed menstruation is not unfrequently relieved by a smart bleeding from piles.\*

\* The experience of these salutary effects from the bleeding of piles, it is, perhaps, that makes the French practitioners so fond of ordering leeches to the verge of the anus in cases where, with us, they would be probably ordered to the temples or elsewhere. However that be, from what I heard and saw of the practice in France, I think it more worthy of imitation, in many cases, than it would appear to be. It seems only to want a *theory* to introduce it more into favour.—*Ed. of Lect.*

## FISTULA IN ANO.

The next affection of the rectum, which we have to consider is called *fistula in ano*, and it is one not unfrequent, particularly in elderly people, but which is now and then met with in early life. People who lead very sedentary lives appear to be most liable to this disease, but you will meet many cases in practice among those whose habits are quite the reverse; you meet it among people of very different constitutions—among those reduced by other diseases, and in some who appear in other respects in excellent health. Now, how are we to know that a man is breeding this complaint? Why, its symptoms in the commencement are in some cases little heeded, for they give little trouble; in others, even the first symptoms are very severe;—it begins generally in an abscess which forms in the vicinity of the anus, and opens externally, and in five or six weeks there is no trace of the abscess, but in its stead you find a fistulous canal, leading sometimes into the rectum, and this mostly discharging good matter; the opening may after a time heal up, and another form, and, in this way, several openings form in succession, run the same course, and heal up as others commence. The patient begins to notice the complaint by feeling an uneasiness or pain in the rectum—he cannot sit comfortably;—you examine the part, but can see neither redness, swelling, nor any other mark of disease about it, nor can you feel anything externally, but on introducing your finger into the rectum, and feeling about, you find there is one spot in it tender to the touch, and the patient, on your pressing it, tells you there is the disease. Although at this examination there is no appearance of anything externally, yet perhaps in five or six hours afterwards the case will be different in this respect;—you see him, suppose, to-day without any external mark of his complaint, and when you see him to-morrow you are astonished at the rapidity with which they have come on;—you will now find a healthy collection of matter formed, and as it is slow in coming forward, and giving the distinct pointing, you must open it at once, for it is seated in the cellular membrane, of which there is an abundance in this region, and there being but little tendency to the adhesive inflammation the matter would be widely diffused among it—this in its turn suppurates, and in this manner does the disease spread. You are aware from what you know of the anatomy of these parts, that you have not much to fear of the matter getting into the pelvis, but you also know that there is but little anatomical hindrance for it to burrow to very great extent through the perineum and round the rectum if the constitution of the patient favours such a progress;—suppose the matter (as it usually is) to be confined to one side, other symptoms may arise that become very distressing, and even very urgent; sometimes the patient, after experiencing uneasiness or pain about the anus, with fever, &c., finds himself unable to pass water, and although he may strive for perhaps even ten or twelve days, he will not be able to evacuate one drop—well, how may this end without

surgical assistance? Why, all at once he finds himself relieved from the retention and all his other symptoms—he now empties a very much distended bladder—he makes water with the utmost freedom every time he desires it, while all the distress about the anus is removed, and this relief is brought about by the abscess opening itself into the rectum. When, after some time, you are enabled to feel one particular spot near the anus with a deep-seated hardness and more tender to the touch than elsewhere, there need be no longer any doubt about the nature of the case.

You cannot in every case say what may have been the cause of these beginnings of fistulæ in ano; sometimes it comes on of its own accord, sometimes you can trace its commencement to external violence, and sometimes to solid matters swallowed in food, which are detained in the rectum, make their way through its coats, and, lodging in the cellular membrane exterior to it, excite inflammation and suppuration there, such as little spiculæ of bone, which I think are generally swallowed in broth made of fowl—I have cut some out of these abscesses fully an inch and a half long. Piles sometimes, but very seldom, cause these fistulæ. Now, in people of bad habit it sometimes begins with pain beside the rectum—the part feels hard, and there is a swelling, but no redness—it is slow in its progress, and perhaps in a month after it has been first noticed it gives the feel of fluctuation, and what is very extraordinary, it does not appear to spread much;—in such a case as this you will find that the lungs are affected—the patient has what the country people call a thickness of the breathing—that is, a hard cough without expectoration, and a difficulty in respiration, particularly after any exertion;—now, these two affections, that about the rectum, and that of the lungs, have a mutual dependence on each other—it is proved by this fact, that when the abscess forms, the lungs are always relieved;—if the patient is labouring under phthisis pulmonalis, even that disease is suspended in its destructive course,—a stop is put to it at once on the appearance of this abscess,—and so long as the abscess continues to discharge freely, so long is the patient respited. Knowing this I have opened some of these abscesses, and have endeavoured all I could to maintain a discharge from them, but I could seldom get them to keep open, or to keep up their secretion, and consequently failed to do the lungs any service. How are we to treat abscesses about the rectum, if we see them in their earliest stage? If they be of the phlegmonous kind, attended with symptoms such as would denote a healthy inflammation tending to the formation of healthy pus, why leeching would occur to one; but leeches over an abscess—that is perhaps four or five inches from the surface—cannot be expected to have much effect, and in point of fact they do no good here;—fomentations, sitting over the steam of hot-water, emollient injections, gentle laxatives, and perhaps an occasional anodyne, seem sometimes to do service, but sometimes nothing appears to produce any sensible effect.

## LECTURE XXXIII.

Fistula in ano (*continued*). — Fissure of the rectum — Hæmorrhoidal excrescences.

HAVING satisfied yourself that there is no disease in the chest, or other constitutional impediment to an operation for fistula in ano, you next examine the parts themselves to learn all the local circumstances of the disease which it is necessary to be acquainted with. The abscess which originates a fistula in ano, may, as I have said, open into the rectum, or it may break externally ; — or there may be two openings leading into the fistulous sinus, one externally in the integuments, in the neighbourhood of the anus or about the perineum, and the other in the coats of the rectum. Now, suppose a case where there is no disease of the lungs, and that the fistula is external, you come to examine the part, and you generally see a little fungus protruding from the opening — sometimes, however, there is no fungus to be seen, and the opening itself can be detected with the greatest difficulty, owing to the smallness of the aperture, and to its concealment among the folds or wrinkles about the anus — after you have looked for it some time the patient will have to point it out himself to you. Well, suppose there should be no external opening, nor any visible mark at all to indicate positively the seat, or even the existence of the disease, you proceed to examine the intestine itself ; if you depended much on the expectation of feeling something that would tell you where the abscess was, when exploring the rectum with your finger, you would oftener be disappointed than successful — but if you press here and there you will observe the patient to wince when you come to one particular spot, and this will direct you, for you are pressing where the sinus in all probability is. Now, suppose you find the external opening, you introduce a probe to examine the extent and direction of the disease ; perhaps it goes in but a short distance when it seems to be stopped by the bottom of the sinus ; but the cavity may be of much greater extent than you suppose it to be, for the fistulous canal may have a tortuous course, and your probe may be arrested only by one of the abrupt turns ; you must, therefore, take your time and examine carefully in every direction, and perhaps you feel it at last sink unresisted an inch or two farther. But you are not quite safe from committing a mistake the very opposite to this — for if you give too much force to the probe in its search, it will break through where there is no fistulous canal running, and so you may fancy the sinus of much greater extent than it really is. You next examine if there be also an internal opening, what is called a *complete fistula* ; — you oil your finger, and pass it up into the rectum, and push the point of the probe gently towards it, and at last it passes perhaps through an opening, and lies naked on the end of your finger. Now, the distance of this internal opening from the verge of the anus is very variable — it may be but a few lines, and it may be even above the reach of your finger ; I think that when

the opening in the gut is high up, it is smaller in general than when it is near the anus. The wall of the fistulous canal may lie close to the rectum, or it may be some distance; you will sometimes think there is nothing separating them but the proper coats of the gut, while in other cases there may be a septum of an inch thick or more between them. The direction of the fistula may or may not be parallel to that of the rectum; — they may be close to each other below, and far asunder above, or *vice versâ*.

Now, having satisfied yourself as to all the material circumstances of the fistula, how are you to treat it? Why, you may read of stimulating and other injections—of enlarging the external opening merely, and dressing the cavity from the bottom—of scarifying or even excising the callous walls, and various other contrivances—but a true fistula in ano was never cured by any one of them, nor would it be if you could try them all in a case—there is but one mode on which the least reliance for success can be placed, and that is the division, through its whole extent, from top to bottom, of the septum dividing the cavity of the rectum from that of the fistula. But suppose a case where there existed no difficulties in the performance of such an operation, should we unhesitatingly undertake it? Are there any circumstances, general or local, that should deter us from venturing or relieving the patient by this operation? There are both. I mentioned to you that experience proved, in particular instances of fistula in ano, a connection or sympathy between the local disease and grave pulmonary affections; now, if you meet a case of this kind never attempt to operate; if you find on inquiry that the patient had had a chest affection for some time—that there came on the local complaint about the rectum, and that on its appearance the other complaints were relieved,—any operation that you performed for that man's fistula would hasten his death. If, on examining the fistula with a probe, you find that it extends very high up—that is, beyond the length of your finger introduced into the rectum, you should not operate, because you would probably wound the trunk of one of the hemorrhoidal arteries before it divides into branches, or some considerable venous trunk, and a hemorrhage be the result, attended with some danger to the patient, and often very great difficulty and trouble to the surgeon to suppress it. If the course of the fistulous canal be not parallel to that of the rectum—that is, if, suppose, the upper part of the canal be a considerable distance from the rectum, and its lower part near it, or *vice versâ*, you should not operate; if the fistulous canal be parallel to the rectum, and that on passing a probe up into it you find every part of the canal even an inch distant from the coats of the gut, as felt by your finger in the latter, that distance is no objection to the operation. In making these examinations of the disease, you should observe one thing—not to introduce the finger into the rectum first, and then the probe into the fistula, but introduce the probe first, and then your finger; for if you should distend the gut with your finger, you may not be able to trace the exact course of

the fistula afterwards with the probe. In introducing a probe into a fistulous canal for the purpose of examination, take care that it is really passing in the course of that canal, otherwise you may be pushing it through the cellular substance in a wrong direction; in fact, little force will make it go in any direction as well as the right one.

Having ascertained that no sufficient ground of objection to the operation exists, you place your patient, lying on his face, across a bed, you pass a probe-pointed bistoury into the fistula up to the extremity of the canal, and having oiled your fore-finger, and passed it up the rectum to the same height, you cut the intervening septum between the cavities of the gut and the fistula through, from top to bottom. Now, supposing the fistula had no opening into the rectum, that it was what is called a *blind external fistula*, you will often find considerable difficulty in pushing the bistoury from the fistulous canal through into the rectum, and particularly if there was much distance or thickness of parts between them; from pushing it in an awkward manner, I have more than once seen the knife break, and half its blade left in the wound; the manner in which you are to proceed is, to scrape your way through, by repeated touches of the knife, until you come to the gut, when you can easily push it through its coats. Now, when you have gotten the point of the knife in the gut, you are, of course, to cut it out, and this is a part of the operation that many surgeons bungle at; — if you merely *pull* it towards you, you will have to exert considerable force; I have seen a surgeon use so much force in pulling the knife through, that, when by some accidental turn of his hand, the knife suddenly cut its way out, he was near falling on his back; — the way you are to cut through the parts is by a sawing motion, keeping steadily the point of the bistoury against the point of your finger in the rectum. There may be a number of openings from the fistula, but this forms no objection to the operation.

There is another very different appearance of the external opening of a fistula from what I have described — instead of the little fungus projecting from the opening, and the opening itself small and hard round its edges, you will sometimes find the opening a mere slit in the skin, the edges of which are flabby, and sometimes overhanging — the slit sometimes the length of the eye of a probe; — the patient's pulse is about 96 in a minute; — if you operate on this patient, this will happen — that although your incision was but just of the proper extent when made, yet (and it is a curious fact) in a few days it will be like a chimney; — the wound will have opened to such an extent that you can see up into it — it will seem as if you had scooped a large piece out of the side of the anus, — there will be a profuse discharge from it, and dreadful pain. I remember a man coming to the hospital one morning in this state, and one of the pupils, who just saw him, asked him if he was cut for fistula with a spade! In such a case as this the patient cannot live beyond three weeks after the operation.

When you have operated for fistula in ano, in a case proper for

the operation, how are you to dress the wound? Just lay a little dry lint into it, and in doing this some little address is requisite; if you push it down from the external wound you are not certain that it has got to the bottom of the cavity — or, after pushing in a good deal, as you think, you may after all find you have only pushed it into the cavity of the rectum, and not into the sinus at all; the way you are to manage, then, is this — first, introduce the lint on your probe into the rectum itself, and from that push it sideways into the wound.

Among the untoward consequences that may result from the operation, is that of hemorrhage, and you may not immediately be aware of its occurrence, because of the blood not coming out through the wound; although there should be little or no bleeding externally, there may be internal bleeding. What are the symptoms that indicate this internal bleeding? The patient complains of uneasiness about the rectum — he gets weak — he feels an inclination to make water, and tries to make it but cannot — he strains a good deal, but not a drop will come; — he has great desire to go to stool, which at length becomes so urgent that he cannot resist it, and then he passes a large quantity of blood by the rectum, and perhaps falls off the night-chair in a faint. This bleeding is sometimes very troublesome to check, and if not stopped might destroy the patient. Hemorrhage is one of the occurrences from this operation that should deter the surgeon from carrying his incision too high up, as, if it extends above the upper margin of the deep sphincter of the rectum, there will be the dilated pouch of the gut ready to receive a large quantity of blood, with diminished hopes of making an effectual compression on the bleeding part. The way I succeeded in checking a very alarming hemorrhage here was this — I got a piece of sponge about the size of an orange, passed a strong ligature through it, and pushed it up sufficiently high into the rectum, leaving the two ends of the ligature hanging out of the anus; I then introduced dossils of lint between the ends and up to the sponge, and continued adding more to them until I had distended the bowel considerably, and so the bleeding was repressed; — these I would not disturb for four or five days, until I was sure there was no more danger from a return of the bleeding; I would rather have the patient's bowels confined for four or five days than run the risk. When the bleeding is trifling, the only notice the patient has of it is, that in two or three days he passes a little coagulated blood, which generally assumes a granulated appearance, by stool. This is of no consequence — if it should continue unreasonably, cold applications externally, and injections of cold water, may be all that will be necessary.

There is a less frequent kind of fistula in ano which you will sometimes meet — it is this — the patient, for a couple of days, feels an uneasiness about the anus, and on examining it, you find a portion of the integuments inflamed with the unhealthy copper-coloured inflammation; it spreads rapidly, and extends to a considerable dis-

tance ; this may last for seven days, if the patient lives so long, and then the skin gives away, and a quantity of sloughy cellular membrane is discharged. There is no great tenderness on handling the affected part ; the patient however is very low, and would in most instances soon sink if left without surgical aid ; even with the greatest attention the case is one of extreme danger in general. Now, it is represented in books, and I believe very correctly, that this kind of case mostly occurs in people of intemperate habits, but I have seen it in a man who was never guilty of intemperance, but who had a bad chest. I have seen it in a lady who could not be accused of intemperance, and whose constitution seemed otherwise good ; — there is, in fact, something peculiar in the taking on of this kind of disease, and which I do not clearly understand. You must make an early and free incision here, and not on one side of the rectum alone, for the matter burrows round it, and generally, I think, round the point of the coccyx ; you must therefore cut the rectum on both sides as you would for fistula. You will often see a patient recover from this form of the disease without any operation being performed at all, but just left to nature ; I had an opportunity of witnessing how much nature would do without the surgeon, in a case of this kind, where the patient was timorous, and would not permit a knife to be used ; unless the rectum be quite bare, therefore, the operation may be unnecessary. It is a curious thing how a case of this kind will heal perfectly, and yet a fistula, arising from a healthy phlegmonous abscess, will not heal without a division of the rectum.

When one of these abscesses about the rectum opens of its own accord, and becomes fistulous, the opening in the skin is not always in the immediate vicinity of the sinus to which it leads ; it is occasionally seen rather on or about the buttock. Now, sometimes the orifice of a fistula is very much forward in the perineum, even near the scrotum, and it will become a consideration whether it is a fistula connected with the urethra or the rectum ; — on inquiry, the patient tells you the urine never comes through this opening — you make him pass water before you, but nothing comes from it — you wipe it dry, and apply a handkerchief to it, and keep it there for some time, but you do not perceive the least marks of urine upon it — well, you introduce a probe, this will get into a canal, just under the skin leading towards the anus, and this of course explains the nature of the case ; the treatment of this is very simple — to cut open the canal ; this leads you to the sinus near the rectum, which you are to divide as in the ordinary fistula. When you open a fistulous sinus take care to examine if there be any collateral branchings from it leading to other sinuses, and if there be, open every one of them, or you will have done but little. This method of treating fistulæ about the rectum is just what would be done to cure a fistula anywhere, provided there were not special reasons against it. Where fistulous canals ramify in every direction, in the axilla for instance, it would often be very rash to attempt following them with a knife ; and laying open some of them only, leaving a part untouched, would do no service. But even in fistula in ano we are sometimes prevented

operating, as I have pointed out, by the timidity of the patient, and for such cases the treatment by ligature has been advised. I am far from agreeing with some writers that the employment of a ligature to destroy the septum between the cavity of the rectum, and that of a contiguous sinus is either safer, or less painful, or more likely to be successful than a cutting instrument, very far from it; but should a case present itself where you are not allowed to have your choice, you may have recourse to the ligature.\* After operating for fistula, although you have divided the sphincter, of course you need be under no apprehension that the patient will suffer any permanent inconvenience from this cause; he will be able to retain his fæces as well as ever before the wound is healed.

*Fissure of the Rectum.* — There is a very distinct case of disease of the rectum with which you ought to be well acquainted; the patient is perfectly healthy, and feels no pain or uneasiness until he goes to stool, and even while passing his fæces there is no pain felt, but after a distinct interval of time — in some instances not for five or six hours after, there comes on a most violent pain, generally of the burning kind; — on examining the anus you can see or feel nothing externally; on passing your finger into the rectum, it generally feels natural, but on closer investigation you will find a fissure, perhaps not half an inch long, in the mucous membrane of the gut, and extending in depth only through this membrane, and it may be seated at the back on either side of the bowel; — the treatment of this, as described by Boyer, is certainly very effectual — it is to pass in a knife of any shape you may think most convenient (generally a convex-edged one is most convenient), and divide the rectum through this fissure; the consequence will probably be, that there will be no pain after the next stool. How are you to dress the wound afterwards? Do not, on any account, put dry lint or any other thing into it, — just make your incision, and leave it so. There is one symptom that will better explain the nature of this case than even an examination through the rectum — and it is so constant, and so obvious, that I wonder very much it has escaped writers on the subject — it is, that there is always a distinct interval of time, from ten minutes to an hour or more, between the passing of fæces and the occurrence of the pain. Now, the operation I have described is certainly an infallible cure; but can this disease be cured in any other way? It can — I have cured a timorous lady, who would not permit the use of the knife, in this manner — I introduced a piece of lunar caustic into the rectum, and rubbed it to the part affected, and every troublesome symptom, as the pain, &c., was removed.

Various kinds of specula have been contrived to enable us to examine the rectum with more satisfaction, but not one of them answers the intention; — in fact they all tend rather to obstruct the view than to assist it,† you can just turn out the verge of the anus.

\* See Foubart's operation, as described in Sabatier's *Med. Oper.*, vol. 2, p. 331. — *Ed. of Lect.*

† In a case of scirrhus-contracted rectum I saw with Mr. Colles, he used a blunt

*Hæmorrhoidal Excrescences.* — I have mentioned hæmorrhoidal excrescences, and said they were not at all connected with piles, or related to them ; — a patient tells you that when he goes to stool a portion of the bowel, or something else, protrudes from the anus — he has some pain in passing his stools, but the pain is removed by his putting down his fingers, and returning the protruded parts within the anus again ; sometimes they will fly up like a spring, and sometimes they go up slowly ; — in this case as in piles, he gets fits of his complaint, and in the intervals is perfectly easy ; — these fits of the excrescences coming down, and of pain, last for an hour or two, and then go off : sometimes there is no bleeding from them, but sometimes there is, and very profuse, too, occasionally, and when the patient is much exhausted by them, the sphincter ani is so relaxed that you could introduce your four fingers together into the rectum, without much difficulty. When you pass up your finger into the rectum you feel it soft like the villous coat of the stomach, with perhaps a slight hardness in some places ; but although there may be three or four of those vascular tumours in the rectum, and sufficiently low down to be reached by the finger, you will often fail to discover them by the touch ; you must in fact *see* them, and then you find the disease to consist of a few, or many, tumours of different sizes, soft, of a purplish colour, with numerous minute vessels ramifying on their surface. Some advise the removal of these tumours with a ligature ; I think the dangers of serious inflammation, or tetanus, much greater when ligatures are employed here than where they are excised ; the way I proceed, then, is this — direct an enema to be thrown up, and when he passes it, these excrescences will protrude — get an assistant to seize one of them with a hook — but not the one you intend to cut off, — then, having determined which you mean to remove, catch hold of it lengthwise with a polypus forceps, — then take a strong pair of crooked scissors and snip it off ; — you need seldom remove more than three of them out of the group ; indeed two of them will often be sufficient ; — I would not advise the removal of any of them that are situated higher than the sphincter ani reaches, for fear of hemorrhage. Although I am quite sure these excrescences will get well of themselves, if nothing at all is done for them, yet it is absolutely necessary sometimes to use means to moderate the severity of their symptoms, and they can always be rendered very mild, if not cured, by causing an enema to be thrown up every night going to bed, consisting of eight or ten grains of sulphate of zinc in four or five ounces of water, and causing the patient to retain it all night ; and, if the parts should protrude, having them smeared with a liniment composed of a drachm of subacetate of lead in two ounces of olive oil.

The fits of this affection come on without any evident cause ; — I know a gentleman who uses very violent exercises, — and which

gorget in preference to the ordinary speculum which I had with me ; it answered extremely well. — *Ed. of Lect.*

never by any chance bring these fits on him, and yet he often has his fits of them without any assignable cause ;—I do not know what induces these fits. I have a great objection to Hey's method of scooping out these excrescences, for if you cut away any of the skin at the verge of the anus, you may depend on this, that although some time may elapse before the effect is produced (and it is generally slow in its progress), you subject the patient to a very serious inconvenience during his life, arising out of the contraction of the aperture of the anus that results from it ;\* just merely cut off one or two of them, as I have suggested. I have said they are not connected with that varicose state of the hæmorrhoidal vessels called piles—and this is proved by cutting into them, when you see nothing like the venous structure in their composition ;—there is often a profuse bleeding from these when you cut them off, but, like the bleeding which may follow the cutting of the rectum in fistula, it is generally internal bleeding ; in one case that occurred in my practice this bleeding continued for twelve hours, and the patient was almost exhausted ; there were four surgeons called in with me to try to stop the bleeding—we tried dry lint, turpentine, injections of cold water, everything we could think of, but nothing would do—at last, when I was left alone with the patient—expecting he should die, a plan occurred to me, and it was a wonder I had not thought of it before—namely, that of Petit, which I have before spoken of as applicable to severe hemorrhage from the operation for fistula in ano, and I was fortunate enough to stop the bleeding by it.

There is another danger from this operation, not peculiar to it, but common to all operations on the rectum, and which should be kept in recollection—namely, that you will not always be able to heal the wound—a higher degree of pain and inflammation takes place in the wound than should be expected if things were going on right, this inflammation spreads, and the patient may die of this slow or mild peritoneal inflammation. Sir Astley Cooper was so afraid of this inflammation that he advises ligatures instead of the knife—but I am exactly of a contrary opinion to him on this point—for the inflammation will take place from the ligatures themselves—and there is one danger equally as great—which is extremely likely to occur from ligatures about the rectum—namely, tetanus.

\* I saw a gentleman who had been operated on four years before by an eminent surgeon, and so small and rigid had the opening of the anus become, that no solid, larger than a garden pea, could be passed from the bowels, and with the miserable prospect of its gradually becoming still smaller.—*Ed. of Lect.*

## LECTURE XXXIV.

Psoas abscess. — Symptoms — Diagnosis — Treatment — Acute psoas abscess.  
—Curvature of the spine—Symptoms of angular curvature.

## PSOAS OR LUMBAR ABSCESS.

I HAVE now to bring under our consideration a good example of what is called a *chronic abscess*—that is, you will recollect a formation of matter in a part, without much pain or heat—without throbbing—unattended with high inflammatory fever—in short, without those local and constitutional phenomena which accompany a phlegmonous abscess, and distinguish it. You will also bring to your recollection other differences between these two forms of abscess—that in the chronic there is but little tendency to the adhesive inflammation; and that this accounts for the more irregular traversing of the neighbouring parts, and more sluggish approach to the surface in the chronic abscess. *Psoas* or *lumbar abscess* is of this kind, and one to which every age and both sexes are subject; you will meet it after the middle periods of life, and it is not uncommon in children under twelve years of age.

The approach of this disease is very insidious, and often passes unnoticed by the patient or his friends for a long time, particularly in children. The patient, perhaps, at first remarks merely that his legs are not so useful to him as they used to be;—that although he used to like country walks, and often took long ones without fatigue, yet now walking a short distance tires him, and he is obliged to lie down and rest himself after any trifling exertion. If you question him, he does not complain of much or any pain in his back, but says he has an uneasy feel in his loins, which he cannot well describe, and the feel of fatigue in his limbs continue even when they have not been exercised. If you desire him to rise up off his seat, you will remark that he rises very slowly, nor can he walk immediately after getting up; he is obliged to stop a moment to balance himself, and then he walks, and you would say tolerably well, but he cannot run at all. If you desire him to stoop he can do so; he can stoop down to the ground, but not like a man with a sound spine;—he cannot recover himself, however, without the assistance of his hands, with which, resting on his knees, or something else near him, he raises himself slowly erect. This state of things may be going on for many weeks without any external appearance of the abscess.

There are several situations where the matter formed in psoas abscess may make its appearance externally; you are not to expect that it will present a regular conical *pointing* any where, but the fullness is most generally observed below Poupart's ligament, on the outer side of the femoral vessels on the front of the thigh—sometimes, although not near so frequently, it shows itself above the same

part of Poupart's ligament. Next to below the ligament, the most common place for the matter to appear is in the lumbar region; and here it is that it gets the name of *lumbar abscess*; but there is no difference between this and the first, except merely in the place where the tumefaction of the matter shows itself. Sometimes we see it at the verge of the anus — sometimes on the buttock near the acetabulum; but wherever it appears, there is nothing like the symptoms attending a phlegmonous abscess to be observed — there is no discoloration of the integuments — no pain — no hardness such as surrounds and circumscribes a phlegmonous abscess. As it goes on it gets larger and larger, and at length the skin gets discoloured; finally, a small opening forms, a serous or curdy matter is discharged, and the opening becomes fistulous. After it has been discharging in this way for perhaps six months, a little spicula or crumb of bone may come away, but this must not be set down as a symptom of the complaint — it is no essential part of the disease.

The friends of the patient breeding psoas abscess, observe him to become pale, — he has not a very healthy look, but, except this, his constitution does not appear to suffer anything material — just as much as you would expect a constitution to suffer from the confinement and want of exercise, to which the patient has been subjected. Very soon after the opening of the abscess forms, however, his constitution begins to fail; — you will not in one case out of fifty observe rigors or symptoms of hectic fever, until after this opening forms, or is made by the surgeon. At an uncertain time after the abscess opens externally, violent fever sets in — I have seen it begin in twenty-four hours after, and sometimes not for eight, ten, or twelve days; sometimes he goes on to the last stage of hectic fever, having colliquative diarrhœa, night sweats, swelled legs, &c., and yet he will not despair of recovery. I attended a pupil of my own in this state, who, if he had seen any one else in the same condition in which he then was, he would at once have devoted to death, and yet to the last moment he had no notion that he was dying; I know no other disease but this and pulmonary consumption, where hope continues so long. It is difficult to say what description of persons is most prone to psoas abscess; — we find it in people who have led the most active life, and the very opposite — we see it in the young, the middle aged, and the old — some insist that it is intimately connected with scrofula; — I do not know why it should be called a scrofulous disease; — it may be inconvenient to call it that, when we can see no other cause to refer it to. Sometimes it may be traced to an injury, but often there is no evident cause whatever to attribute it to.

There are other diseases for which psoas abscess might be mistaken; — a stone may form in the kidney, and this lead to suppuration in that gland, and the matter may point in the lumbar region. Now, it is important to distinguish between these two cases, — for in an abscess of the kidney a free incision will relieve the patient, but I doubt much, that, if the case was lumbar abscess, whether a free

incision would be serviceable in such a case ; — they may be thus distinguished — the renal abscess begins and goes on attended by pain in the region of the gland — there will be vomiting, retraction of the testicle, and pain or numbness at the top of the thigh ; — there may be suppression of urine, or, in a word, any of the symptoms of nephritis — now, there are none of these in the lumbar abscess, so that you can always distinguish by the history of the case. Sometimes the matter of psoas abscess makes its appearance at the acetabulum, in the situation where matter may point in morbus coxæ, and when examining the patient he inclines his body to the side opposite to that in which the disease of the spine is, and this position gives a flattened appearance to the nates ; — these two circumstances may establish a strong resemblance between psoas abscess and hip-joint disease ; — make the patient stand straight, and take the spinous processes of the last few dorsal vertebræ and those of the lumbar ones between your fingers, and try to move each alternately from side to side ; if the case be psoas abscess this will give pain, but not so if it be hip-joint disease ; — you will make also the necessary examination of the joint itself, and investigate the peculiar indications that mark out its disease from its commencement, and you will have little difficulty in establishing a diagnosis. When the matter of psoas abscess shows itself below Poupart's ligament, it is said it may be confounded with femoral hernia, and you are told that you can easily distinguish one from the other, by making the patient lie on his back, and that the matter will go up out of the thigh into the abdomen. Now, there is not a single word of truth in all this — the matter *will not* go out of the thigh, and the hernia *may* ; — when on the subject of hernia I laid before you the obvious, and, in my opinion, sufficient distinction between the two cases, but if you have any doubt you may distinguish them by feeling above Poupart's ligament, where, if it be the psoas abscess, you will distinguish a fulness, and by alternately pressing on that and the fulness on the thigh, you are sensible they communicate with each other — of course this test will not be present in a case of hernia, — but you will hardly in any case of this kind be able to feel a distinct fluctuation.

It is a subject of much controversy whether psoas abscess begins in the bones or ligaments of the spine, — and on the decision of this question much of the success of your treatment is said to depend ; the truth is, it is not known in which structure it begins, for there has not been, as far as I know, a single dissection of its commencement ; for my own part, although it is quite a matter of opinion, I believe it always begins in the bodies of the vertebræ. The prognosis of psoas abscess is very bad — not one patient out of fifty recover of it ; I am sure in the course of my practice I have not known five cases in all to recover ; I never knew a case to get well where a surgeon interfered at all with it.

On dissection of this disease, the bodies of some of the vertebræ are found entirely destroyed by ulceration leaving their processes ;

the intervertebral substance and ligaments also having suffered in proportion, and yet with all this it is remarkable that the limbs are not affected in the same way as they are in other cases of carious vertebræ. The quantity of matter formed in some of these cases is enormous; it of course begins behind the psoas muscles, but as the disease advances, those muscles become diminished in volume and altered in structure, until at length they seem to be entirely absorbed, and their fascia acts as a sort of bag or cyst to prevent the effusion of the matter into the cavity of the abdomen. In this preparation you have an opportunity of judging to what an extent the accumulation of matter may arrive at; you see that it has occupied the place of both psoas muscles, and large as these distended bags appear, they were even larger when recent; I am sure they were capable of holding four or five quarts of fluid. The matter that forms in psoas abscess is that of whey-like appearance, with flakes of lymph mixed with it, that is often considered as belonging peculiarly to scrofulous inflammation, and hence, I suppose, some set it down as having in this case a scrofulous origin; however that be, it is certainly not at all like good pus.

Now, how are we to treat these cases? As there may be a chance of causing absorption of the matter, your first object will be to effect this, if possible, and the means you are to make use of with this view will be, in the first instance, by irritation on the surface. Various stimulating liniments and ointments have been recommended to be rubbed over the swelling, but the only advantage that one has over another is that which its superior stimulant power gives; blisters have been tried, and with apparent advantage in some cases. Pott advises you to make an issue on each side of the spine, and to keep them open for a considerable length of time, and it is supposed that the benefit derived from them is owing to the quantity of matter discharged. I do not think the amount of discharge from the issues has anything to do in the cure; I believe all the beneficial effect comes from the irritation they produce on the surface. If my views be correct, it will be clearly useless to keep up the discharge from an old issue; the patient must be kept quiet, but he is not to be kept lying constantly on his back, or kept constantly lying down at all; — let him set up a little, or be carried about gently in an easy vehicle; whenever you permit him to walk out a little, take great care that it is on even ground, for if his foot happens to trip, or strike against anything, he suffers violent pain, and the disease is increased by it; he ought not to be kept shut up in a room — let him have country air and light good diet. Although this plan of treatment is the best with which I am acquainted, yet I am obliged to confess I cannot boast of having ever cured a patient by it, or that in a single instance it arrested the disease.

Now, suppose all our efforts to produce absorption of the matter of a psoas abscess to fail, as unfortunately they will, in the great majority of instances, what next are we to attempt for the patient? If we leave it alone, the distension will at last produce inflammation of

the integuments over the matter at some point or other, ulceration will follow, as I before mentioned, and the contents of the abscess be discharged ; but although the distension be in this way removed, the process of ulceration may not be checked : it may go on until there is a large opening into a large cavity, and the constitution become violently affected, and the patient sinks rapidly. If you make a large opening into the abscess, the same thing will happen : hectic fever rapidly supervenes, and the patient will die in, perhaps, six weeks. Well, then, your object is, to make a small opening with a lancet, and valvular, such as Abernethy directs — that is, one where after the evacuation of the matter, and that you bring the edges of the cut in the skin together to make them unite, the opening in the skin will not lie over or opposite to the immediate entrance into the cavity of the abscess. Should you resolve to open one of those abscesses, it must be done before the abscess has pointed, or the skin become red, or thinned at any one point — it must never be attempted when the integuments are in this state, for the incision would not be got to heal under such circumstances, but would necessarily ulcerate. Although it is of importance to avoid a large opening, yet it will not answer to have it too small either, for if it be, there may not be room for the exit of those flakes which generally float in the matter of psoas abscess ; and if you have to introduce a probe frequently, to push away those flakes that fall against the opening, and prevent the matter coming out, you run the risk of irritating the little wound, and indisposing it to heal, and of admitting the introduction of air into the cavity of the abscess, which would probably do mischief. But a trifling blush in some part of the skin may not ultimately interfere with your operation, for you will perhaps be able to remove it with evaporating lotions, cold water, &c., and if so you may use the lancet.

It has been advised to open some of these abscesses by caustic with the view of exciting a healthy action in the cyst — but if caustic was able to effect such an intention, it would still be liable to objections so strong, on other grounds, as to overbalance any supposed advantage that could be urged in its favour ; it would be impossible to control its action with any certainty within assignable limits ; and of course it could only act by ulceration. Some have thought it an improvement to open these abscesses by seton, first to evacuate the matter gradually, and next to prevent the entrance of air into the sac : — Why, if the first was necessary, in the way a seton might be supposed to act, the intention could much better be answered by the lancet — and as to a seton preventing air getting in, I should think it no bad apparatus to force it in. I was consulted in a case of psoas abscess which came on after a fever, and it formed a tumour above and below Poupart's ligament ; — the surgeon in attendance proposed to pass a seton through the swellings from one end to the other ; I had no particular objection to make the trial, and the thing was attempted ; but all he could do could not get the seton to pass from the lower to the upper tumefaction, for the communication between them was not direct, but so zigzag, that the

instrument could not make its way, and he was obliged to relinquish it,—yet from that period the patient began to improve, and ultimately got well. The method of opening those abscesses, recommended by Abernethy, is that which we should adopt in all cases we venture to meddle with at all. After you have opened the abscess on Abernethy's plan, the case certainly appears to be going on well for, perhaps, three months, and then a change takes place, and at the cicatrix of one of your former incisions, or at some other part of the abscess, an opening forms of itself, or perhaps two, and from this the patient begins to decline. I never saw an instance where this plan succeeded perfectly—it is, however, but justice to that method to say, that while you are treating the abscess according to it, you never have hectic fever, nor does the abscess increase.

Various internal remedies have been tried for the treatment of this affection, chiefly of that class which the state of the system would seem to require, but although temporary improvement of the constitution has occasionally followed the exhibition of medicines, the local disease has very rarely evidenced their influence. Bark and iron have been recommended;—I attended a boy who had a very large abscess of this kind,—he was swimming in the profusion of matter, and his own perspiration—I ordered him bark and steel, and after he had taken them for a short time, he got worse, and continued to grow worse,—I then left off their use, and from that day he began to improve, and is now able to take any exercise that a young man could take. The prognosis in psoas abscess is very unfavourable; the great majority of such cases end badly. Some account for this from the circumstance of the vertebræ being diseased,—but in some other cases where the bones of the spine are carious, and extensively so, and where there are stronger evidences of sympathy of the spinal marrow with the diseased vertebræ, we do not find them by any means so alarming.

From severe exercise or other cause, inflammation, of the phlegmonous character, sometimes takes place in the cellular membrane about the psoas muscles; this proceeds to the formation of matter, and this may point in the situation of the common psoas abscess, and has therefore received the same name. But there is no affinity whatever between the two; in the former there is more or less inflammatory fever—there is pain in the part, sometimes very severe, and the vertebræ are not at all affected; this case you treat, generally and locally, precisely as you would a phlegmonous abscess any where; if you should have to let out the matter, you will find it good healthy pus.

#### CURVATURE OF THE SPINE.

There is a disease which very much resembles psoas abscess, called the *Posterior Curvature*, or *Pott's Curvature of the Spine*. Any part of the vertebral column may be affected with it; although it is generally seated in the dorsal region, it is not at all uncommon to

see it in the neck, and sometimes it occupies the lumbar region. The deformity, which is always caused by the disease, wherever situated, will differ according to the part of the spine affected, and modifications in the effects on other organs than the spine itself, will be greatly influenced by the same circumstance. The premonitory symptoms of curved spine are not at all severe or prominent; in fact, the first symptoms are often unnoticed, and its progress throughout is slow. The disease generally begins in young people, but you may see it often commence in middle life, and sometimes later. The first thing noticed is the lassitude and unwillingness to take the usual exercise, or use the degree of exertion so natural to youth; there is a languor and sedateness in the boy's countenance perhaps unusual to him, and sometimes he complains of an uneasiness, or a weakness in his back; and when he stands he leans against a chair, or anything near him, to take off some of the weight of his body from the spine; he is able to walk, but if he runs he trips, from want of power to direct his legs properly, and they cross each other; — if you desire him to point his toe to any particular spot on the carpet, he is obliged to make several efforts before he succeeds. At last, if the disease is let to take its course, the lower extremities become less and less under the direction of the will — they become paralysed, as it is called, but it is a state as unlike true paralysis as any two things can be. In paralysis the limbs are soft and incapable of any muscular effort whatever — here they are rigid and capable of stronger muscular effort than they would be in a natural state — they are not obedient to the will, but they will act contrary to it — they cross each other — they dart forwards as he sits in his chair, or backwards under its seat — sometimes they will go in opposite directions — or execute various other movements of their own accord that would require considerable force to overcome or repress. The tone of the constitution becomes greatly lowered; — in some there is retention of urine, and inability to retain the fæces; — if the disease is in the dorsal region the breathing may be affected. Now, if this disease of the spine is not meddled with, it may get well of itself — the patient recovers the use of his limbs, and recovers his health perfectly, but the curvature remains as long as he lives. On examining after death the spine of one who had recovered from the disease it will be found that bone has been deposited, in a very small quantity however, between each two diseased vertebræ, and a true ankylosis formed to repair the weakness of the spine by its curvature and the deficiency in the bodies of the vertebræ. Much dispute has arisen as to whether this disease (which is a true caries of the vertebræ) begins in the bones or ligaments; — as we never have an opportunity of examining it until it has gone on some time, we are still unable to decide positively on the subject — my own opinion is that it begins in the bones; we sometimes find the bones carious, and the ligaments about them very much thickened.

In the beginning, as I have said, the symptoms are very indistinct — the constitution is a little lowered, and but little, from the state

of health, and at this period all examinations of the spine are fallacious ; — in making these examinations of the patient, we are told to take hold of the spinous processes of each vertebra one after the other, and push them from side to side, and whatever vertebra gives pain on being so treated, is the seat of the disease; but if you do this to a patient while he is standing erect, you will have to use much force to move the vertebra, you should, therefore, have him placed in a recumbent position to relax the spinal muscles ; — it has been proposed to dip a sponge in hot water, and pass it down along the spine, and that when it comes to that part of it which is the seat of the disease it will be indicated by the patient's sensations — I have no reliance at all on this test, nor in any pain complained of in pressing the extremities of the spinous processes — they carry no confusion with them ; — sometimes men, but particularly females, are subject to pain in the spine, particularly in the loins, so that you are constantly liable to be deceived if you trust too much to signs of this kind ; — when, with these pains in the spine, the patient is unable to sit long, the case is likely to be caries — the commencement of Pott's curvature. In men who are dyspeptic, and in women who are what is called nervous, there will be this wincing on pressing or moving some particular vertebra, although there is no disease whatever of the spine ; — you ought always carefully to recollect, that there are many of the symptoms belonging to dyspepsia, hypochondriasis, and nervous diseases, which very nearly resemble diseases of the spine ; — take care, however, that you do not overlook the disease when it really does exist.

Pott's plan of keeping up a perpetual drain is a very good one, yet I do not consider the quantity of the discharge as at all of importance to the cure — it is the irritation caused on the surface, to which I attribute all the benefit of the treatment. It is absolutely necessary that the patient should be kept in the horizontal position, and this not merely for two or three months, but for a year or even two. But the caustic issues and position alone will not cure the disease of themselves ; — the general health, — the tone of the constitution — must be improved by country air, proper diet, &c., — it will not be enough to send your patients to the country, if they are kept shut up in a room, — they must be brought out into the open air, but of course in a cot, for they are not to quit the horizontal position. We are told that it is possible to support the weight of the body from the spine by machinery, and accordingly a great variety of steel apparatus has been contrived ; — if you pass through the villages in England, you will be astonished at the number of those miserable beings who have been submitted to these machines ; as the coach rolls through the town they all run to the windows to see it, and they really look like wretches in gibbets rather than what they are. The truth is, that for one individual that is screwed into these machines, who have disease of the spine, fifty at least have no such thing : all I can say from my own experience is, that I have tried the most improved ones, and I do not think a

patient can bear the pressure which the instrument should make on some part of his person to give the spine the necessary support, and that not one out of ten will get any relief from such things. But supposing that you were able to get any piece of mechanism that could support the weight of the trunk, by resting on the hips or other part of the body, still would such contrivances do very great mischief instead of service, by preventing the vertebræ coming together and uniting, as they might do if not interfered with, and which is the only circumstance that can offer a hope of permanent cure of what is liable to turn out a fatal disease.

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### LECTURE XXXV.

Pott's curvature (*continued*).—Lateral curvature of the spine.—Morbus coxæ.

I HAVE already expressed my opinion that the benefit resulting from the establishment of issues, in any case, does not depend on the principle of opening large drains, — that the quantity of the discharge is not material, but the degree of irritation caused upon the surface, and with this conviction, I think that repeated blistering, and the keeping open the blisters with suitable applications, will be always sufficient; but you will often have to use the former, however, and this leads me to say a word about *issues*. The impression on your mind, from what you have read of the matter, would be, that to apply issues and keep them open, would be a very easy matter, and free from all danger — but the reverse is often the case; — in bad constitutions I have known two patients die from the cut made for an issue; — but the scratch of a pin would have caused the death of these persons by exciting diffuse inflammation, as the cut of a lancet did. I saw a child who was under the care of a surgeon for a diseased joint; — after having an issue in for some time, the little patient complained of pain in the issue — the surgeon took no notice of it — it became more severe — a black spot formed on a little fungus which was on the surface of the issue — two or three others afterwards formed — mortification took place, and the child died. When the issue becomes irritable and gives pain, never disregard those symptoms — just take out the peas, apply a poultice (a carrot one if you like, or bread and milk), and when these symptoms go off you can resume the issue; I have a patient who has an issue in these twelve months, and during that period I have been obliged to act thus three or four times. Sometimes the issue will get extremely painful, but it may be owing to a little fungus rising out of it — if this is the case, pressure or a mild escharotic is the best thing you can employ; sometimes the issue will become very painful, and on inspection you can see nothing about it that could cause the pain; yet if there continues *much* pain, and that pressure or caustic does

not relieve it, it will operate on the constitution at last, and whether it has been put in for curved spine, or a diseased joint, take out the issue, or the patient runs down rapidly in hectic fever; — the morbid irritability is the important thing you have to watch. If the case be curved spine for which you have to employ an issue, you will remember that as the patient has to lie a great while on his back, peas or beans will not do to put in the issue, for the patient could not bear the weight of his body on them; in this case get a bit of felt, cut it the size of the issue, and lay it into the ulcer, taking care that it lies just within its margin, without covering any of the skin, as that would allow the part of the ulcer on which the felt did not press to heal up perhaps in twenty-four hours; have two sets of these bits of felt, and then you can change them every second day, and get the other bits washed for the next change.\* Sometimes, after being in for six months, the issue will cease to discharge — rub its surface pretty hard with lunar caustic, or lightly with potassa cum calce, and you will have a new issue formed, with which you can go on as before.

I do not consider that the paralysis of the limbs or the affection of the bladder and rectum in curved spine arises from the pressure of the bones on the spinal marrow, for these effects will disappear though the curvature remains as before. When the disease is in the cervical vertebræ, the upper extremities are hardly ever paralysed. As far as my observation goes, I think more patients recover when the disease is in the lumbar region than elsewhere. An ignorant or superficial examiner might possibly imagine the existence of a curvature of the spine, where there was no such thing; for instance — the spinous process of the last cervical vertebræ projects so much beyond the line of the others, as sometimes to deceive one at the first glance, if there was any reason to suspect an affection of the spine: or one or two of these processes may sometimes be observed to project beyond their fellows, in other parts of the column, and deceive one for a moment; but careful examination will always clear up any doubts that may have arisen. It is said posterior curvature might sometimes be confounded with another curvature of a very different description, of which we shall have to speak presently, but any one who could continue in such an error, and act on it, must be very incompetent indeed to treat such cases.

#### LATERAL CURVATURE OF THE SPINE.

We shall now consider another form of curved spine, which has no resemblance whatever to the former, except that in both there is an unnatural bend in the vertebral column; this is called *lateral curvature* of the spine. In the first, or antero-posterior curvature, there is caries of one or more of the vertebræ, and the curvature is consequent on that condition of the bones; but in the

\* I have found the size formerly used for felt gun-pellets suit extremely well, and they can be cut readily and evenly with the proper punch.—*Ed. of Lect.*

lateral curvature there is no disease of the bones at all, and the cause of the curvature appears to be simple weakness of the parts; in the former, there is but *one* curvature—in the latter, there are two or three, if the disease continues; a peculiar condition of the muscles of the lower extremities is a frequent concomitant of Pott's curvature, but I never saw any tendency to paralysis in lateral curvature. The disease comes on without any pain; its first approaches are generally unnoticed, and the dancing-master is frequently the first who perceives it; he says he cannot get the young lady to stand erect, she cannot hold herself up. There is an awkwardness in the whole figure and gait that at first does not seem referable to any one part in particular. On a closer examination you perceive a curve in the spine to one side or the other, and the shoulder on the side to which the patient leans, depressed; the scapula of one side seems more prominent, and shifted round on the convexity of the ribs, while the other has approached nearer to the middle line of the back. If you follow the course of the spine closely with your eye, you may detect a second curvature above or below the one you first noticed, giving somewhat the outline of an italic *s*. If you examine a prepared specimen of a spine which had been affected in this way, you observe that the spinal column is not merely bent unnaturally, but that it is twisted on itself, and that the front of the bodies of the vertebræ form the convexity of the curvature, and this twisting is, in advanced cases, so great that the transverse processes of the vertebræ engaged look one row forwards, and the other in the places naturally occupied by the spinous processes, while those last are approximated to the ribs on the concave side of the curvature. I shall send one or two of those preparations round, and you will be able at a glance to understand the wrong positions of the bones in advanced cases of lateral curvature. There is little or no twisting of the spine in Pott's curvature, and the convexity of the curve is formed by the spinous processes\* of the vertebræ; the thorax may not undergo any very remarkable alteration of form until the last periods of the disease. The commencement of lateral curvature is observed most frequently between the ages of seven and seventeen years; most frequently in females and those of a weakly habit of body, and I think much oftener in the higher classes, than in those who lead a more active and laborious life.

For the treatment of these cases nothing is more common than the employment of machinery, in every possible variety, to support the weakest part of the spine, as they say—but which is the weakest part?—this is not so easily determined, as the spine exhibit no actual marks of disease. If the patient could bear the pressure of these contrivances of iron, I would still doubt that any benefit could be derived

\* In the lateral curvature the bends in the vertebral column are true curves, and sometimes very gentle ones, while in Pott's curvature the spine is bent at an angle, sometimes exceedingly acute, of which remarkable specimens may be seen in the museums of the Colleges of Surgeons in Dublin and Edinburgh.—*Ed. of Lect.*

from their use — and, in fact, you see more crooked backs in those who have been encased in steel and whalebone from infancy as a preventive, than in any other description of persons. The best thing you can do is to order good air — let the patient take as much exercise in the open air as he can ; let him have sea-bathing, and, in a word, everything to improve his strength, leave the rest to nature, and it will be found that as the child grows up, there really appears to be less deformity. I have never known a patient die of this disease, nor does the constitution appear to suffer from its presence.

## MORBUS COXÆ.

*Morbus coxæ* is generally observed in people before the meridian of life — from the period a child first begins to walk, up to twenty or thirty years of age. Before the disease shows itself, the patient is in good health, and there is often nothing in his appearance that could account for the local disease. The first symptoms are often unheeded ; — the child walks with a little lameness, which is thought to be a mere habit, and he is spoken to about it — he is checked for the careless gait he gives himself, as he is observed to stumble often. After some continuance of these incipient symptoms, he begins to feel pain in the limb ; frequently it is seated in the knee indeed, that is the most common place to which the pain is referred, though sometimes it is felt in the middle of the thigh, or in the ankle, but not in one case in twenty is there any pain felt in the hip itself ; generally this pain in the limb, in whatever part of it it may be situated, is only very troublesome after some exercise of the affected member. This symptom frequently leads to mistakes as to the real nature of the case ; — you frequently see children brought to the hospital whose knee has been leeches and blistered, or submitted to other treatment supposed of use for inflammation of the joint, by a careless or ignorant person, who has never suspected anything to be wrong, except in the knee itself, and who has wasted his attention, and a great deal of important time on a perfectly sound part. This pain in the limb does not continue during the whole progress of the disease — you find it generally to last only through its earlier stages. When the patient rises in the morning there is great stiffness in the limb, but towards evening he has quite the use of it, as if little or nothing was the matter with it, or at least it is much better. When the patient walks unguardedly he is liable to trip, as I mentioned — now, one labouring under spinal complaint trips also, but this is owing to the legs crossing each other from a want of power to direct the feet properly, on account of derangement in the nervous influence probably, but in the hip-disease it arises from the position of the foot and want of power to raise the toes sufficiently from the ground towards which they droop, and along which they are in some measure dragged ; so that seeing a patient walk across a room, you could almost distinguish his complaint without anything further.

What examination will you make of a patient you suspect to have hip-joint disease? In examining the condition of the limb, it is always best to begin with the patient standing up, for in this position, any irregularity of shape is better marked, and more easily detected when obscure, than when he is lying down;—you observe the position he assumes—that he leans his weight obviously more on one limb than the other—and that he seems to incline the body towards the sound side, to maintain the centre of gravity over the sound joint, while the crest of the ilium is lower on the affected side than on the other. Very often you may detect a fulness in front of the diseased joint below Poupart's ligament, and there is tenderness in the part on pressure; you make him bring his knees and ankles together; it is very important to cause the patient to throw the weight of his body equally on both limbs during the examination, and this he will be seldom found to do of his own accord. When you view the patient from behind, you at once discern a difference in the shape of the buttock on both sides—on the diseased one, the fold between the nates and thigh is lower than on the other, and the buttock itself longer, flatter, and somewhat narrower than the opposite one; it is more relaxed. In some, a hollow is seen behind the great trochanter, while in others there is a fulness about this part; but there is no appearance of the buttock on the affected side that you can implicitly trust to—all you have to remark is, whether it corresponds exactly to the other side or not; you have these appearances less satisfactory when you examine the patient on his face than when standing up. Having made your investigation so far, make the patient lie down straight on his back, and taking care that the spinous processes of the ilia are in the same line, observe if his limbs are of the same length; the knees are better objects of comparison than the ankles to ascertain this, as few patients can fully extend the diseased limb perfectly, and you will find the limb of the affected side longer by a finger's breadth than the other one; I really do not know how to account for this, but reasons assigned by writers do not by any means satisfy me; some have doubted that there is any real elongation of the affected member at all, and suppose the apparent one to be only the result of position, but this is positively not so, and you will find an elongation to the extent I have mentioned on measuring it carefully. In persons who are walking about with this disease, it is a common circumstance that they are unable to straighten the bad limb, although the mere motion does not give them very much uneasiness. On looking on the patient behind, you directly see that there is a curvature of the spine—but there is no disease of the vertebræ, and the curvature is owing to the position into which the patient throws himself; his leg and thigh is advanced, this in effect shortens the limb, and the pelvis, from want of adequate support, falls on that side below the level of the other, and this necessarily gives a bend to the spine to that side. After some time, as the disease gets worse, the pain becomes so severe that the patient is obliged to lie in one position, and cannot bear even to have his bed made. After a longer

or shorter time, he, perhaps, finds himself growing better, and is anxious to get up, and now there is a great change in the appearance of the parts we have been examining in connection with the disease; the limb has become shorter, sometimes to the extent of an inch — still no suppuration may be apparent; — the limb, however, continues for a time to get shorter, an obscure motion only remains in the hip-joint, and the child gets well. Whatever obscurity there may be in the elongation of the limb in the early stage of hip-disease there is certainly none as regards the subsequent shortening. The acetabulum is always, I believe, the part earliest and most extensively affected, and after some continuation of the disease the ulceration of this part at last effects the removal of the impediment which its margin offers to the head of the femur quitting the socket, and the consequence is, that luxation is gradually effected; the shortening of the limb, then, at a late period, bears some resemblance to a dislocation of the femur from violence. As the elongated and flattened buttock at first was owing to a lengthening of the limb and to its position, we now find the buttock shorter and more rounded than natural, as these causes disappear.

The usual constitutional symptoms announcing the formation of matter anywhere, are generally noticed on suppuration taking place in *morbus coxæ*, but often the local appearances of that event are tardy in exhibiting themselves. When it does take place, the matter first discharged is mostly small in quantity, while in the other cases, when suppuration takes place, the patient is often run down by the profuse discharge which makes its way out by from one to twenty-five openings; — in very bad cases there is sometimes discharged from the joint a very offensive, brownish matter — here the abscess has made its way into the pelvis, and has formed a communication with the rectum, and this you know beyond a doubt by air getting into the abscess when the patient tries to expel wind by the anus; this particular case is generally fatal, — I have, however, seen one such case recover. Sometimes the patient gets hectic, and this state having continued for five or six weeks, he may chance to get better, and if he once begins to improve, the improvement is generally progressive. Although the disease be fairly established, yet by attention to the child's health it will often appear to get well, and continue so for several weeks, yet after this it will get bad again, and go on its course as if it had never been interrupted: this fact should make you cautious in giving a favourable opinion too readily as to the issue of a case. By keeping the patient very quiet, and paying strict attention to each symptom as it arises, the improvement in every feature of the case will sometimes be very rapid — so rapid, indeed, occasionally as to lead you into the error of supposing you had mistaken the disease altogether. Here is a preparation which shows the course matter, formed in the hip-joint, and making its way through the acetabulum into the pelvis, takes. This preparation exhibits an appearance often observed in the bones of those who had had *morbus coxæ*. [The upper margin of the ace-

tabulum was prolonged into a sort of lip ; the head of the femur was almost absorbed, and a smooth surface on what remained of it, modelled to a corresponding one on the edge of the acetabulum, making a kind of ginglymoid articulation.]

There are some affections of these parts that might be confounded with morbus coxæ ; — before psoas abscess comes forwards externally, it has a great deal of the appearance of hip-joint disease, on account of the position the patient takes and is obliged to stand in. Children are very subject to pains in their limbs which their grandmothers and nurses call “growing pains ;” — whatever the nature of these pains is, they are certainly very innocent, as they quickly get well of themselves — but while they last, they might be mistaken for morbus coxæ. There is another curious complaint which might also be confounded with it — a child, say two years old, goes to bed quite well, and on waking in the morning, he feels great pain on the slightest motion of one of his limbs — if you attempt to move it he screams violently ; I do not know what the nature or cause of this affection is, but it is very simple, for it gets well in three or four days by the use of a warm bath or two, and attention to the bowels ; — I recollect a child being once brought to the hospital on a visiting day ; all the surgeons of the hospital saw it, and declared it to be an excellent specimen of morbus coxæ, and I was directed to put an issue in the hip, for which purpose the child was to be brought on the following day to the hospital ; but it did not come, and in two or three days after, I went to make inquiries concerning it, and found it running about, playing with its companions, and on examining it there was not the least trace of the disease to be seen. This case attracted my attention, and subsequently to it I have seen two others ; I do not know what the symptoms witnessed in these may be owing to, but they get well of themselves.

Now, if you are called in to an incipient affection of the hip-joint, attended with acute inflammation, you will treat it on the antiphlogistic plan — you will have a number of leeches applied round the joint, have it stuped, and keep the parts at perfect rest, &c. ; but if you should see it at a later period you will have to pursue other methods. I have no objection to Ford's plan of issues, but as I think the quantity of the discharge of no importance, and that it is the irritation of the surface which really does service, my plan of treatment in preference is the application of repeated blisters — just a small strip which I would put suppose in front of the acetabulum to-day, and when that was healed, another bit on some other part about the joint, and still putting on a new bit in this way until I had produced a good effect, but always round the margin of the acetabulum ; — all the cases I ever saw cured were by this method. It has been proposed to put issues in front of the acetabulum ; this is very fair practice if the bone is softening in front, but that is a rare occurrence, and the situation where the issue ought to be put should depend on the part most affected ; behind the great trochanter is the most usual, and perhaps the best situation for it.

When the patient has recovered his health, and the use of the limb is restored, we are too ready to say he is well, but I believe the tendency to a return or continuation of the disease often exists some time after apparent convalescence; they often get a return of the symptoms—these go on the same course as the preceding ones, and on subsiding, they leave the limb still shorter than it was after the first attack. I know one gentleman who gets a return of his hip-disease every three or four years, and this has been going on so for fifteen years past.

There is another affection of this joint which might be confounded with morbus coxæ, but from the common form of which it is very necessary to distinguish it—a man comes to you, and complains of pain in his knee, as in the common case—examine him further, and you will find his hip diseased—investigate his case still farther, and you discover some one of the secondary symptoms of the venereal disease to be also present now, in this case the hip-disease is a true secondary venereal symptom, and all you have to do is to give the patient mercury, and you cure the hip and all. There is another curious affection of the hip that has often come across me, and which is of a peculiar nature—after the middle period of life a man gets rheumatism in his limb—he tells you he got a great wetting, or perhaps was up to his knees in water for some time, and to this he attributes his complaint; but this is not the case, for I have seen the disease in a gentleman, who I believe has not been once exposed to wet these twenty years. Well, this patient cannot walk without crutches or sticks, and to look at him walking towards you, you would say he had exactly the walk of a man who had had once a fracture of his femur near the neck—he looks in perfect health, although for a long time he has undergone excessive pain; I have known it to go on thus for two years;—I cannot say positively what the nature of this disease is, for I never have had an opportunity of examining a person after death that I knew during life to have had this disease, but when I was in the habit of much frequenting the dissecting-room, I found these two specimens which I suspect belong to the malady I speak of. [The preparations exhibited the cervix femoris changed from its natural oblique direction to one quite horizontal, and of course that limb must have been shorter than the other; the head of the femur had lost its sphericity, and assumed the shape of an acorn; the acetabulum had been very much deepened by a deposition of bone round its margin, and probably by some absorption at the bottom of its cavity.] This disease is not unlike sciatica in some respects, but may readily be distinguished from it in this—that in the latter the pain can be traced in the course of the sciatic nerve, and if you press on the nerve, you give a great deal of pain.

By-the-by, speaking of sciatica, it is a disease that sometimes appears very obstinate, notwithstanding the variety of methods recommended for its cure;—now, I have always succeeded in removing this very painful affection by first clearing out the bowels, and

then giving medium doses of calomel and opium; as soon as the mouth becomes affected, the sciatica goes, while neither mercury, nor anything else that I know of, will cure the other disease. *Morbux coxæ* in children should be watched with great care — and thus you will find, that surgery will effect much less towards its cure than merely taking care of the constitution of the patient.

There is one material circumstance that I should mention regarding this hip-joint disease — the patient labouring under it will often appear to get almost well, and his parents and the medical attendant will be congratulating themselves on his improved condition, when they will be very much disappointed in their expectations by finding him getting the symptoms of hydrocephalus — he gets convulsions, and may be carried off in twenty-four hours; — this I have often seen occur — I have seen the same thing happen in white swelling of the knee-joint, and I should suppose the same would happen in white swelling of the ankle-joint, although I have never seen an instance of it. The first case I ever saw of this was very remarkable in one particular — the child got better of the hydrocephalus, and then the knee, which had greatly improved as the cerebral affection advanced, now got bad again; after a while the head affection returned, and the knee became better, and thus they alternated three times with each other.

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## LECTURE XXXVI.

White-swelling—Loose substances in joints—Wounds and other injuries of joints—Diseases of bones.

### WHITE-SWELLING.

THE term white-swelling has been applied to more than one affection of a joint, although at present it is much more restricted than it used to be. I shall have occasion to notice one or two varieties. White-swelling, in its proper acceptation, occurs most frequently about the middle periods of life, but is, however, very often seen in children. There is a difference in its approach in these periods; you will never see a case of white-swelling commencing under the age of puberty, without a deviation from health, but not always so when it makes its appearance in after life. Its approach is slow, is accompanied with pain — the patient is only aware of anything wrong by a stiffness in the motions of the part, and when in the knee-joint (which is the most common seat of the disorder), the patient walks badly, with the knee bent. In this insidious way it may go on for several weeks, but on looking at it, you perceive that the natural points of the joint are obliterated, that it is swollen, and has become more rounded than the sound one, while the natural colour of the integuments remains unchanged, as the name of the disease would mark

as one of its distinguishing characters. The joint will permit flexion and extension at this period, to a certain extent without any pain, but if you move it beyond this extent, the patient will cry out with pain. As matters go on, the patient is easily tired — he cannot use as much exercise as he was accustomed to, and his constitution may suffer a little; at last, the limb loses all motion in the joint; sometimes a patient will not take to his bed for a long time, but will get up every day, even until ulceration takes place in the integuments. At an irregular and uncertain period of time — in some months, or it may be years, perhaps, an abscess forms and may open near the joint, or at some distance from it, even so low as the middle of the calf of the leg, and a quantity of curdy matter is discharged, without at all reducing the swelling of the joint, however; — after a time this opening may heal, and another form, which will in its turn continue to discharge. When the pain in the knee becomes severe, the constitution is quickly run down, and hectic fever sets in — but recollect this, the abscess will sometimes form in the joint, and even burst, before any symptoms of hectic shall at all have appeared. At length, without anything being done by us, perhaps, the general health begins to improve — the local symptoms are better, and the patient quits his bed — but the joint is very stiff, and this the surgeon calls a cure by ankylosis — but the disease is not perfectly removed, and the patient should be particularly cautioned to guard the limb from suffering any violence, for a slight hurt will bring back all the symptoms again, and the second attack will be very rapid in its course, — it will mostly be in every particular worse than the first.

If you examine the disease in the commencement, the synovial membrane will be found red and inflamed, and coagulable lymph thrown out on its surface — I believe the cartilages are next affected, they become absorbed, first assuming a blistered appearance; — the bones become softened, and the periosteum is not so firmly attached to them in the neighbourhood of the disease. In dissecting a joint affected with this white-swelling, you first cut through a perfectly sound integument, merely smoothened and thinned by the stretching; next you cut through a cheesy substance contained in the laminæ of the tendinous covering of the joint, and this accounts for a symptom that is characteristic of the disease — that is, a springy elastic feel of the tumefied joint, without any pitting on pressing it; this springiness is so common, that some of the German writers have called white-swelling “*Fungus Articulæ*,” — but we do not give it that name, as we have another and very distinct disease of the joints, to which we think it more appropriate. I think the disease of the bone, and the absorption of the cartilage generally, begins at the internal condyle of the femur, although the patient refers the pain to the external one. You have no feel of fluctuation in the articulation until matter forms in it; for, on account of the quantity of lymph thrown out into its cavity, there is really no room for synovia to collect in it to give this feel of fluctuation; — it is remarkable that whether it be the femur or tibia alone, or both of them together that be affected with white-swelling, so also is the

patella, and indeed I think the patella is more frequently diseased than either of the other bones; when the disease has ceased, the patella is often found fixed by ankylosis to the external condyle of the femur.

White-swelling of the knee is generally of a chronic nature, but sometimes, as in morbus coxæ, it is acute, when it will run its course in as many weeks as in the chronic form it would have taken months to do. In the chronic cases the joint is swollen before any pain is felt, but in the acute case motion of the limb is excessively painful before there is any swelling, except, perhaps, a little fulness from an increased secretion into the joint; the fluid poured out in these cases does not seem like healthy synovia, but as if a mixture of it and serum. There is a great dispute, particularly in England, as to whether the heads of the bones be really enlarged in this disease; it is a matter I will not pretend to determine, but whether they are or not, one thing is certain, that the shafts of the bones engaged in the white-swelling are very much attenuated, and even the fibula, which has nothing to do with the knee-joint, becomes very slender. You will have remarked that I have not attempted a classification of these cases, into those beginning in the synovial membrane, in the cartilages, and in the bones—if we could always determine the fact it might turn out of little importance after all; in children, I believe, the bones are often primarily affected. White-swelling might be confounded with other conditions of the joint;—sometimes the large bursa above the patella, between the extensor muscles of the leg and the lower part of the femur, becomes inflamed, and fluid is poured out by the sac,—and, as this bursa often communicates with the general synovial cavity of the knee-joint, it might be mistaken for white-swelling of it, but it is very easy to distinguish them—in the case of enlarged bursa there is no pain in moving the femur and tibia on each other, and if you make the patient extend his leg by the action of its extensors the figure of the swelling is altered, there will be a hollow made in its middle by the pressure of the muscles and patella—neither of these will be the case if it is white-swelling. Sometimes after using a good deal of exercise, or taking a long walk, there will come a pain in the knee and effusion into the joint,—this might be mistaken for a white-swelling—but the difference in the approach of the two is, that in white-swelling the pain comes on long before the effusion, while in the other case they come on together;—there is one great distinction between white-swelling of the knee and other diseases of it—a symptom that never fails to point out the nature of the case clearly, and it is this—in white-swelling the flexor tendons of the leg are not sharply out as they naturally are, but the hollow in the popliteal space is filled up to their level—there is always this filling up of the ham, but I do not know to what it is owing. In forty-nine cases out of fifty the position in which you will find the leg is flexed or semiflexed on the thigh, and lying on the outside, but in the fiftieth case you will find it extended as straight as possible, and resting on the

heel, and the patient cries out with pain if you attempt to move the limb — yet put that patient sitting on the side of the bed, or on a table, and you may not only flex the limb, but swing it backwards, like a pendulum, without giving him any uneasiness. Patients labouring under this disease seldom complain of pain *in the part*, but rather a sense of uneasiness — a feel as if it was tired, — as if the bones entering into the articulation were not rightly bound together; they have, however, pain in the *limb* going upwards towards the abdomen, which they call rheumatic pains, and it is useless to try to persuade them that they are not rheumatic.

There are many cases of white-swelling met with where neither the patient nor his friends can assign any rational cause for its appearance. Some cases have their origin in exposure to cold or damp apparently, and several are found to come on during convalescence after fevers of various kinds; some are attributed to the sudden recession of eruptions — but there must evidently be a predisposition to the disease in the constitution or the part, or we must discredit many of the agencies said to induce the affection.

In what way are we to treat white-swelling? We are, in the first instance, to enjoin perfect rest of the limb — if the symptoms are acute we should direct a number of leeches to be applied, but not in one case out of fifty need we put the patient on the strictest antiphlogistic regimen — in fact, those persons in whom we mostly find this disease, have constitutions that could not bear this regimen, even where the disease was most acute; your chief object, as far as antiphlogistics are concerned, is to lower the local action, and I think when the pressure of cupping-glasses can be borne, that cupping answers even better than leeches. Purging medicines are of no use, and even act injuriously by obliging the patient to move the limb; — send the patient to the country, to the sea-side, but not to bathe — that is out of the question, for the patient could not bear the motion; — when there are no very acute symptoms, irritation to the surface is of no great use — but do not, as is often done, put a large blister over the whole knee; — Dr. Harvey, who had as much opportunity of observing this disease as any man, told me that he never saw a large blister in such cases do service, and often saw it do mischief, and I am quite of the same opinion — for I have known a large blister reproduce all the pain, &c., or increase them; issues will be found of use near the joint. If the patient recovers, he gets up with a stiff knee, which is called ankylosis of the knee-joint, but it is not a true ankylosis — we have not in the two museums of this college three specimens of true ankylosis of the knee, and a similar deficiency exists in all the museums in Europe. The heads of the bones become altered in form in this disease, and this alteration is one of the great causes of the stiffness in this joint after recovery from white-swelling; you can satisfy yourself of this by cutting away the thickened parts about it, and you will still find it difficult to remove the bones on each other, or to straighten the limb. This fact is useful to recollect — for if, from

the supposition that there is a perfect ankylosis, the patient should neglect proper caution, and if, in consequence, the limb meets any violence, all the symptoms come back again, and the patient's life is considerably endangered. Instruments have been contrived to produce a gradual extension of the limb — but this is a very useless and dangerous trial, for the attempt, although made with great caution, has often brought the disease on again, and thrown the patient into a most perilous condition ; but even if this plan did succeed in a case perfectly to your wish, little would be gained by the risk, for the limb would be almost as useless and awkward as it was before.

After the patient has recovered from white-swelling of the knee, you sometimes find the joint altered in its form, and the leg and foot out of position ; you observe the internal condyle of the femur projecting on the inner side of the knee, and the upper end of the tibia projecting in like manner on the outside with the fibula, giving an unnatural breadth to the appearance of the whole joint ; this is entirely owing to the position in which the patient keeps his limb while lying in bed, for while the thigh and knee were kept supported, the pillow did not extend down the leg, and its weight displaced it in the way I have mentioned ; then, as the patient got tired of lying on his side, he was gradually getting more and more on his back, and the leg and foot being held by the weight of the bed-clothes, they did not turn entirely with the rest of the body, the consequence of which was, that the toes were kept turned outwards, and this malposition remains permanent ; the limb, however, will have as perfect a recovery as if the shape of the joint and position of the leg were properly maintained.

There is a form of white-swelling of the knee which I wish particularly to call your attention to, as the distinguishing it from others is absolutely necessary to successful treatment, for its nature is totally different from all others — it is this — patients who have secondary syphilis will often get a pain and effusion into the knee, like the white-swelling of children, and it is a true and perfect symptom of the venereal disease in its secondary form ; — a pupil of mine saw a case of this kind in an hospital in London, and mentioned to Sir A. Cooper what he thought it was — Sir Astley said he was mistaken, but that to satisfy him he would give the patient mercury — he did so — the knee got well under it, and Sir Astley himself declared it was the first case he had ever seen of the kind. This case may be distinguished from common white-swelling by one remarkable symptom — namely, that the popliteal space is not filled up, as it always is in white-swelling. In the acute cases of white-swelling you will cure nine cases out of ten by throwing in calomel as quickly as possible ; some cases will, to be sure, resist this medicine, or anything else in fact that may be attempted for its cure, but you will find it the most effectual of any method of cure you can employ.

There are some cases of affections of the knee-joint, and I should suppose of others, which are now and then met with of a very puz-

zling and distressing kind. I was once called into consultation on a young lady's knee, which had been for a considerable time in an extremely painful state; — there were four of us examined it, and three of the four could see nothing externally the matter with it — no deformity whatever — one thought he perceived a little fulness in one part; — however, after some time we came to the unanimous conclusion that there was nothing for her but amputation, for she was running down fast with suffering, — we accordingly removed the limb, and on examination, I am sorry to say, we could not perceive the slightest trace of disease in any one part of the joint — all was perfectly sound, and what the disease was I cannot conjecture.

When speaking of hip-joint disease, I should have mentioned one case I saw, where every symptom that one would expect to indicate morbus coxæ was present — nothing that was done for the patient appeared to render him the least service, or even much to mitigate his sufferings; — after death it was found, on examination, to be a case of abscess, of inconsiderable size, in the substance of the os ilium. Here is the preparation of the part — and you perceive that the cavity in which the matter formed could only contain about a spoonful of matter. The cavity in the bone is lined with a membrane, very like the lining of a common abscess in the soft parts, but perhaps a little thinner. I saw once a case of a delicate boy who had all the symptoms of hip-joint disease — he got some James's powder, which purged and vomited him severely — what he threw up seemed green bile, and his stools were very bilious — well, what was the consequence? Why, that in three days he was quite well — his health, which had been bad for some time, was suddenly restored, and all the symptoms of his hip-disease had vanished as if by magic. I have seen other cases very much resembling this one since.

Inflammation in the synovial membrane does not occur by any means so frequently in some articulations as in others, probably because in some places joints are more exposed to injuries of various kinds, — nor when it does occur, is it so formidable in some joints as in others; this can be well accounted for, at times, by certain peculiarities of construction — for instance, inflammation of the wrist-joint is often one of the worst cases we meet, on account of the number of bones composing that articulation, and the extent and intimacy of its lining membrane; but this after all is not of general application, for one of the most perfect joints in the body, as regards its synovial apparatus, is the ankle-joint, and yet I think it bears injuries and their immediate consequences better than many others.

*Loose substances* form in the joints, particularly in the large ones; — their presence may not for a long time give pain, or inconvenience of any kind, when suddenly the patient gets a most intense pain, which may leave him lame for two or three days; sometimes the formation of these substances is preceded by inflammation, and sometimes not — they do not appear to be either bone or cartilage, but a peculiar structure. The operation for their extraction produces no

ill consequences at all on some occasions, while on others the patient loses his life by it, and this even in cases which seemed most favourable for it — sometimes he dies from the great constitutional disturbance, suppuration, &c., and sometimes he recovers with a stiff joint — the greatest attention to the after-treatment will sometimes not prevent either of these results. I once saw a case where a hemorrhage took place from a superficial artery, and we were called to the patient, who, we were told, was dying of the bleeding; the hemorrhage occurred in two or three hours after our operation, and it not only bled externally, but into the joint, yet this man recovered perfectly.

When even fatal consequences may follow a simple puncture into the cavity of a joint, by so delicate an instrument as a lancet, and with every attention having been given to close up the wound immediately, that the objects for which it was made by the surgeon have been accomplished — and that every care has been taken to keep down inflammation by appropriate, local, and general measures; it is not only surprising that wounds and contusions of these parts under much less favourable circumstances, should often be followed by serious mischief. It is not easy to predicate what is to happen from this or that wound of any part. I have seen a large joint have its cavity laid open extensively by an incised wound; the wound heal afterwards with but little trouble, and after a time the patient enjoy considerable mobility in the part — while the puncture of a needle in other cases will be followed by a high degree of inflammation and constitutional disturbance; such trifling injuries, however, in general go on very well, if a bit of the needle or other foreign substance be not left behind; if there should be, and that it can be felt near the surface, an effort should be made to remove it, but although you are certain it must be within the joint, yet that you have no guide to its actual position, you have little else to do than attend to symptoms, and moderate them if you can; the most perfect repose must be enjoined — leeches, cold applications, low diet, &c., are all you have to depend on. Should blood be effused into the joint, and the wound in it be small, you make a gentle compression with the hand, to get as much as you can out without giving the patient pain, and immediately close the wound. But an effusion of blood into a joint may be caused by contusion, and without any penetrating wound of its cavity; it may be absorbed, and the case do very well — we might assist the process by light compresses of lint steeped in cold water, and after a time a light bandage and the administration of calomel. Collections of synovia or blood are sometimes very painful. Sometimes these injuries of joints are followed by abscesses, removal of the cartilages, and thorough disease of the joint, so severe as to require amputation. Gunshot wounds of joints are the most dangerous accidents that can happen, and might frequently deceive an inexperienced person just after the receipt of the injury, for the external wound is small, the swelling trifling, the pain moderate, and the motions of the joint executed with facility; but in some days, it may be, there is an end to this tranquillity — the most violent inflammation

shows itself, and we are often too late to prevent the catastrophe, probably brought about by tetanus. In such a case all we have to do is to amputate the limb immediately, for there are no rational hopes of saving the patient's life by any other means. The best dressing you can apply over a wound of a joint is that recommended by Sir A. Cooper—namely, lint steeped in the blood that comes from the wound. After some time, and all danger of inflammation has passed over, a very gentle passive motion should be cautiously given to the joint, to diminish the stiffness that remains; in some instances the limb will quite recover its natural mobility, but if the injury had been attended with much severity the best we can expect is ankylosis, and to make this as little inconvenient as possible, that position of the limb should be chosen during the treatment, consistent with the patient's feelings, as will tend to the usefulness of the member when it is fit for use.

We shall now turn our attention to a few of the diseases and injuries to which *bones* are subject; but, in a course of lectures like this, it would be utterly impossible to discuss these subjects so fully as their importance to the practical surgeon would merit. Bones are subject to inflammation like the soft parts, and like them it has terminations, or leaves consequences analogous to what I brought under your notice, in the early part of the course, as observed in other structures of which the animal frame is made up. We saw that of the various soft solids of the body, each possessed peculiar influences in modifying these results of inflammation, and even, in a great measure, the nature of the inflammation itself, and it would be expected that a substance so different from any other in the body as bone is, would exhibit its phenomena of disease under very novel and peculiar aspects. Now, this does not turn out to be the case to anything like the extent that might be supposed. If a bone be fractured, it will reunite; abscesses may form in the most solid of them, of which I showed you some examples;—they are capable of taking on the ulcerative process, which is called *caries*; if exposed, they may granulate; tumours may form on them, called *exostosis*;—if affected with a very high degree of inflammation, or they receive a severe contusion, they may mortify, and this is called *necrosis*;—like the soft parts, under certain circumstances, this mortification of a bone may happen without any well-marked signs of a preceding inflammation, and run its course without any very great disturbance of the system;—if the extent of the death of the bone be limited, it will slough off by what is called *exfoliation*; they are capable of being partially or totally absorbed without the formation of matter, by pressure from without or from within, and as in the case of atrophy of the testicle, and in other examples in the soft parts, without any obvious cause whatever; yet they are not without certain peculiarities in their diseases.

## LECTURE XXXVII.

## Necrosis.—Fractures.

THE death of a bone is called *necrosis*, and it may be produced directly by contusion, or after having been previously inflamed, or it may take place without any assignable cause either local or constitutional, or being preceded by symptoms that could be supposed at all commensurate with such extensive and extraordinary morbid actions. *Necrosis* is as curious a disease as any to which mankind is subject; — a portion of bone dies — the sequestrum or deadened piece is confined in a new osseous shell which is formed round it, and is to supply its place — it may imprison this sequestrum for the patient's life, or may permit it to escape, and as it is formed before the dead bone is separated from its living attachments, the whole process may be completed without the patient entirely losing the use of his leg, if the disease should happen to have attacked the tibia. Necrosis may attack any bone, but all bones do not seem equally prone to it — the long bones are much more frequently its seat than the others, although the scapula and lower jaw have, although rarely, been the subject of it. The bones most thinly covered with soft parts are most prone to necrosis, but we can hardly say that the density or looseness of texture have much share in predisposing a bone to necrosis; the lower jaw, on the one hand, is rather liable, while in the bones of the extremities the hardest parts alone are so. We certainly see more cases of necrosis in early life than in any other period — whether this may not arise from young people being more liable to bruises and other accidents of the bones than others, I cannot say, but it is probably one reason. Connected with this is a curious fact, that the periods of life have some concern in the prevalence of the disease in one class of bones over another; in very early life, say from the age of seven years to twenty-one, the *long* bones are mostly affected, while from thirty to thirty-five years of age the *flat* bones more frequently suffer. The death of the bone, as I before remarked, does not appear to be often the consequence of inflammation, for bones inflame without getting necrosis, and they get the latter without any obvious symptoms of inflammation having preceded it. Sometimes the symptoms of necrosis are very severe from the beginning, and when this is the case, the disease runs its course very rapidly. A man, for instance, goes to bed quite well — he awakes in the middle of the night with great pain in the limb — after some time a general tumefaction surrounds it — the pain is not increased on pressure like what he would feel in a superficial inflammation, and this case will have run its whole course in five or six weeks — but this is a very unusual form for it to appear in. More frequently there is but little pain and general swelling, and then sometimes not for two or three weeks, or even months, a little abscess forms without any pain — and at length it breaks, and dis-

charges no greater quantity of matter than you would expect from an ordinary sore of the same size, and not of an unhealthy kind. From the opening or openings thus formed, there projects, after a little time, a small fungus, which is characteristic of the disease ; — at last these openings run into each other, and what seems the end of the bone protrudes, and often is finally discharged, but sometimes not for seven or eight months, or even two years or more. When you look at a boy's leg whose tibia is necrosed, you can hardly hesitate a moment to recognise the nature of the case ; you see the general swelling, with one or several openings, such as I have described — you feel it hard and unyielding on pressure, nor does the handling or squeezing increase the discharge of matter from the opening — if you introduce a probe into the little opening you may sometimes pass it in for a considerable distance without meeting any impediment, and, on withdrawing it, it is not blackened, for the matter is neither discoloured nor fœtid ; if it were caries the case would be different — although the probe might pass in a good way, in consequence of the softened condition of the bone, you should be conscious of a uniform, although perhaps a slight resistance — the matter would be of a bad quality and would blacken the silver. You are sometimes conscious that you can move a something within, which is the sequestrum — but this is by no means always the case.

Now, when you have an opportunity of examining after death the condition of the bone in these cases, you find the new bone very rough on its outer surface and ill-shaped, it is very heavy, and its structure more dense than common bone — its walls thicker — and you see in them one or two openings which are always more or less of a circular shape, and extending in an oblique direction into the central cavity of the new bone, which is small compared with the size of the newly-formed shell, at least until after a long period has elapsed. These holes or canals are coeval with the bone itself, and are obliterated, when there is no longer matter or any remains of the old bone to be discharged externally.\* If you examine the sequestrum, or remains of the old bone, you find it hollowed — in fact, reduced so much that its walls are often not thicker than paper, and its surfaces, both within and without, are quite smooth ; it always retains its original form, particularly in children, so that if you were handed a sequestrum you could tell in a moment what bone it had been. You see by this one I hold in my hand that it is a portion of the tibia, and you observe that its angles are as sharp as they were before the bone had become affected — the same of this piece of a fibula, and so it would be of almost any other bone. Now, if I was asked how the centre of this seques-

\* The end of the new bone is concave, and the corresponding one, on the extremity of the old bone with which it is to be consolidated, is convex, as if the necrosis had extended farther on the dense external lamina than it did in the spongy or cellular osseous structure within it.—*Ed. of Lect.*

trum came to be hollowed, I could not tell — its inner surface is, as I remarked, and as you may perceive yourself, quite smooth, so that its substance could not have been removed by absorption, for if it were, it should be rough like an exfoliated piece of bone thrown off, suppose, from the end of a bone in a stump after amputation — I cannot conjecture how the interior of the old bone comes to be removed as it is. The new bone and sequestrum are not in immediate contact with each other — there is a pulpy membrane interposed between them always, analogous to the lining membrane of an abscess, by means of which the sequestrum is separated. In the long bones necrosis only destroys the shaft in the majority of cases — it has sometimes extended up the shaft of the bone into the joint — but this is so very unusual an occurrence that it would lead one to think the instances observed of it were not cases of true necrosis. The process by which the new and old bones are separated from each other differs from that of common exfoliation in this, that in necrosis the new bone is formed before the sequestrum is separated, and it resembles it in there always being a pulpy membrane interposed between the sound and deadened bone.

When speaking of chronic white-swelling of the knee, I should have mentioned necrosis of the lower end of the femur as one of the things it might be confounded with, and it is not a very uncommon seat of the disease; nor are the external marks of distinction very obvious at a glance: — the way you distinguish them in this — pass your hand from the condyles up the shaft, and if the case is necrosis you will find the femur thickened for a hand's breadth down the lower end of the bone: an abscess sometimes forms between the muscles and the femur in front, just above the condyles, and its feel is often very firm to the touch, and gives little or no sensation of fluctuation, but besides the symptoms that are likely to have preceded such an occurrence, this method will nor fail to distinguish them. I never saw but one instance where bad matter was discharged in these cases of necrosis; — it was that of a soldier, who wanted to make his leg sore to obtain his discharge, and sure enough he succeeded, for his leg had to be amputated. Necrosis will sometimes get well of itself, and indeed surgery cannot do much for it in general; — if it comes on very violently in the beginning, we may sometimes be obliged to perform amputation to save the patient's life, for in such cases the constitution is quickly and severely affected, and the patient would be likely soon to sink under the pain and fever, if this course was not adopted. It is always of course a great object to get out the sequestrum, but not one of such importance in most cases as to justify the adoption of violent measures on the surgeon's part to effect its discharge — the disturbance which its presence seems sometimes to cause in the system can alone justify an over anxiety on the subject. You will frequently see a patient in very tolerable health for months, with a piece of sequestrum projecting from the opening in the integuments, and producing very trifling irritation by its presence — but it prevents this opening from healing,

of course, and deprives the patient of the effective use of his limb, — what you should do then is to examine it from day to day, and when it becomes sufficiently loose, to be extracted without violence, remove it with a pair of forceps. You will in some of these cases, and when you have reason to think the sequestrum is only retained by the soft parts over it, be justified in making a simple incision through the integuments to liberate it. But the sequestrum may be retained by the new bone, and then another question may arise. Suppose the patient is a middle-aged man, and that the sequestrum is, if I may use the expression, wanting to get out, but cannot, which of the two proposals are we to adopt — to amputate the limb, or make an opening in the new bone to liberate it? Why, the sequestrum may be in two distinct chambers, and if you liberate one sequestrum you still leave another there to keep up the mischief ; — or you may, as I have seen done, cut through the entire, or nearly the entire thickness of the new bone without coming to the sequestrum at all, although you could feel with the probe that you were near it ; I saw an instance of this, and the search for the sequestrum had to be given up after a prolonged operation, yet the patient recovered the operation, and the sequestrum was never seen afterwards. The great thickness and hardness of the sides of the new bone ; the difficulty of separating the soft parts from its surface, and the chances of missing what you seek in the end, are against the operation of cutting out the sequestrum being had recourse to. In fact, those who recommend this proceeding were led to give that advice by favourable cases, which are not often met with, and on the whole I think it better to leave the business to nature, or, if necessary, to amputate. The most the surgeon has to do is to look to the patient's constitution, and to see that it is not overpowered.

## FRACTURES.

Fractures of the long bones are among the most common accidents you meet in your hospitals, and yet many students appear to me to give them a small share of their attention. Your every-day cases ought naturally be considered with particular care, and of these, certainly fractures, because mistakes may be followed by permanent injury of one kind or other, and those so obvious as to leave a perpetual reproof of the surgeon's ignorance or carelessness. Fractures might be classed into the *simple*, *complicated*, and *compound* ; — by complicated fracture is meant, that with the broken bone, some secondary injury has been inflicted, as the wound of a large artery, causing aneurism, — or the fracture going through a joint, &c. A fracture is said to be *comminuted* when the bone is broken into three or four pieces, but this circumstance in a fracture makes no difference in the severity of the symptoms, although its reunion may be a little more tardy eventually. A fracture may be caused in two ways ; either by the direct force of a blow, or it may take place without the

bone having received any external violence at the fractured part ; thus, a man in falling from a height, and alighting on his feet, may have one or both bones of his leg fractured : or in a violent muscular exertion the bones may be broken by the action of the muscles themselves : now, the distinction made of the causes of fracture, or the modes in which it is produced, is one of great importance in practice ; when the bone is broken by a blow, it is always, *cæteris paribus*, more dangerous than other cases, on account of the degree of contusion inflicted on the bone and the parts covering it. Compound fractures ; that is, those connected with an external wound, are more dangerous than simple incised ones, and this is entirely owing to the admission of air into the midst of the injured parts.

When a bone, say the tibia, is broken, and you are called in soon after the accident, you may not, on inspection, or from a hasty examination, be aware of the nature of the case ; there may be no deformity, or if any, it may be in such a direction as not to excite your immediate attention ; there is little or no tumefaction of the limb, and the patient seems more in alarm than in pain. In a few hours, however, inflammation of the limb will show itself by general swelling and redness ; after a few days, by proper care, this will begin to subside, and there is ecchymosis in the skin, which in due time is succeeded by a yellow colour of the integuments. Now, this discoloration of the skin is often not at the immediate seat of the injury, but at some distance ; where the tibia, for instance, is broken in the middle of its length, you will very frequently see the ecchymosis somewhere about the ankle or instep ; and it would be well to carry this circumstance in your mind, to prevent you searching for a fracture or other injury where you would be likely not to find it, or neglecting the part where all the mischief lies. When you have satisfied yourself as to the presence of fracture, and everything about it, can you, in all cases, proceed at once to coapt the bones, and apply your splints and bandages ? If you see the patient before inflammation sets in, you may at once proceed to set the bone, but if you are not called in until after it has commenced, you must wait until you have reduced the inflammation by cold or warm applications, local or general bleeding, &c., as the case may require. Now, in placing a limb, after setting the fracture, as well as while reducing the bones, the invaluable advice of Mr. Pott should be carefully followed, to relax as much as possible the muscles of the limb ; if the fracture be in the leg, the best position to lay it in is on the side, in the first instance, as it is the one in which the leg lies easiest, and the muscles can be best put into a relaxed and tranquil position. Of course it is, in every case with which the surgeon has to deal, advisable to give the patient as little pain as possible ; but there are several special reasons why in reducing a fracture you should avoid giving pain as much as circumstances will permit. The chief difficulty experienced in making sufficient extension, is the resistance given by the muscles, and if you set about it roughly, and without minding the patient's feelings, you only excite the muscles to pro-

portionately greater resistance; — now, this can be avoided by a little manœuvring in this way — when you are about to set the fractured limb, do not tell the patient what you are going to do — you can tell him you are only examining it, — let no assistant come near you, — and you will thus, by deceiving the patient, and putting him off his guard, be able by yourself to reduce a fracture with ease, which, if he knew what you were going to do, might require three assistants to accomplish, and give the patient a great deal more pain besides : — for although he wishes of all things to avoid counteracting your efforts to set the limb, he cannot avoid it — the muscles of themselves will act strongly, against his will. There are cases which occur, where, with the best directed efforts, you cannot bring the broken ends of the bones in apposition ; if any muscular substance, for instance, intervenes, you may experience a great deal of difficulty — if the fracture be very irregular or comminuted — if certain parts of some bones be broken where the direct action of powerful muscles is to separate the ends from each other, or to displace them laterally, you may find it difficult to fit the broken pieces to each other, or retain them in their places ; or where there are obstructions to preventing motion by mechanical contrivances ; if the two bones of the leg are broken, the fibula will often prevent coaptation. When you hear of relaxing all the muscles of a limb tending to disturb a fracture, you are aware that to relax all such muscles completely is possible in but a very few cases ; if both the flexors and extensors of a limb can act on the broken bone, as in fracture of the middle of the femur or humerus, you can at best but place the limb in such a position as to equalize their disturbing power, so as to prevent a preponderance of one set over the other. In some cases, however, as in fracture of the olecranon, you can do no more than this.

After you put the bones as evenly together as you can, you have to take your measures to retain them in that position until they unite, and for this purpose, bandages and splints are used. As to bandages, they can offer no impediment to displacement in the long bones of the extremities, but they may be of use in controlling the actions of the muscles by their gentle and steady pressure. Splints were formerly employed with a different view from what the modern surgeons take in their uses — they were used to prevent enlargements about the fracture by an imagined exuberance of callus, and therefore were so short as to go but a little way beyond the seat of the fracture above and below ; now, that we have no such apprehensions, and that splints are considered as mere instruments to prevent mobility ; in fact, to supply, for a while, the firmness which the bone itself had given before it was broken, the splints are made long enough to extend beyond the neighbouring joints, against which they are supported. If you apply a bandage on a limb in which inflammation has commenced, it will get tighter and tighter of course as it swells, and if the patient does not tear off the bandage from excessive pain, the limb will mortify ; but if you see him

before it gets inflamed, you may put on a bandage moderately tight. Now, it will make some difference whether you put on the bandage wet or dry; if you put it on wet, and do not keep it so, the heat of the limb will soon dry it, and it will then have become so loose that you might thrust in your hand between it and the limb; while, on the other hand, if you put on the bandage dry, and with but a moderate or proper degree of tightness, and then wet it, it will constrict the limb to a painful and even dangerous degree, from the shrinking of the materials of which it is composed. You may often have to remove a bandage from the fractured limb, to examine how things are going on, or other reasons, and therefore that kind of bandage which can be removed and re-applied with the greatest facility and least disturbance of the parts is best; a simple roller would not at all do in these cases, but what is called the many-tailed bandage is extremely convenient for every purpose; it is sometimes made by sewing a number of strips, of a length sufficient to go round the limb, and overlap at the ends, to a longitudinal piece; but the latter piece is worse than useless, for if one or two of the tails are soiled by the matter discharged from a compound fracture, you must, in order to replace them with clean ones, remove the whole apparatus, whereas if they are not joined to one another, you can take away just as many of the tails as may be required, and no more, and without the least disturbance of the limb. You should first dispose the tails of this bandage evenly on the pad of the splint, the lower edge of the upper one being a little overlapped by the upper edge of the second, and so on; you then get an assistant to raise the limb with the greatest gentleness, and you slide under it the bandage, pad, and splint together; you begin applying the bandage at the smaller end of the limb in the way you observe here. You must not forget that if the limb be inflamed, you are neither to apply splints nor bandages until you procure a subsidence of the inflammation.

Now, in simple fractures, where, from its appearance, nothing would be expected to go wrong, very troublesome occurrences do sometimes arise; among these are frequent and annoying spasms of the limb, and which, besides the sufferings they produce to the patient, may very much interfere with the union of the bones, by the disturbance they give the fragments. Neither medicine nor mechanical compression do much in checking these, but they may be prevented by a very simple method — let an assistant, or some one else, just lay his open hand on the limb, and keep it there — when tired let another take his place, and in this way you will succeed — nothing is so effectual as the gentle compression of the hand: if you keep off the spasms for twelve hours they will not be likely to return. Although a portion of the muscle getting between the spiculated extremities of the broken bone may cause the spasms sometimes, yet in those you constantly see, there is neither pain, swelling, nor any other symptom of inflammation in it. There are two opposite states of the system which seem to dispose the muscles to those spasmodic actions; namely, the weak and irritable man, and the

plethoric ; so that if you mean to act on the system to aid you in suppressing these spasms, it is obvious the treatment in the two cases must be different. Where the man is of a full plethoric habit you will have to bleed him, keep him on low diet, and so forth ; in the second case, which is often connected with biliary arrangement, you will give him diffusible stimulants, tonics, or alterative doses of mercury, as the case may demand.

Fractures sometimes produce very great constitutional disturbance, even those apparently of the simplest kind ; a man is brought in with a broken leg, in which you see nothing very particular, although a something unusual in his countenance or manner may strike you, and by and by he becomes delirious. But in two such cases the delirium may be very different in its nature, not always quite easy to distinguish in the first instance, and yet the greatest mischief may arise from confounding them in practice. When, therefore, such a case comes under your care, the very first thing you have to do is to learn of the man's friends what were the previous habits of life of your patient. Was he addicted to drunkenness ; you must ascertain what liquor he was accustomed to drink, and immediately order him to have as much of that liquor as he will take ; if it was whiskey, let him have whiskey ; if porter, give him porter, and you will find things will go on right. But if the man had not been of intemperate habits, you must go to work in a very different manner : if a sober man gets this delirium ferox, you must immediately bleed him largely ; make a large orifice in the vein ; make him sit up, and let the blood flow until he faints ; if you do not bleed him in this manner you make no impression on his complaint. Give him large doses of opium, beginning, say, with forty drops of laudanum, and increase it as may be necessary.

I mentioned that if the fracture be one of the leg, you should lay the limb, in the first instance, on the outside, flexing the leg a little on the thigh ; this is the easiest position to the patient, and relaxes the muscles as much as it is possible to relax both the flexor and extensor muscles of a limb at the same time. But although this is the case, it would not do to keep the leg in this position during the whole progress of the cure, and for this reason — the patient will get tired of the one position after two or three days, and will be gradually shifting himself more and more from his side to his back — now, his foot being held down by the weight of the bed-clothes, will, with the end of the fractured bone attached to it, remain pretty much in the position you originally placed it, while the upper fragment will go with the altering position of the trunk, and be rotated or twisted on the lower one : the consequence would be, that if union took place under these circumstances, the toes would be turned permanently too much outwards. To avoid this malversion, therefore, you will, about the seventh or eighth day, put a little pad or cushion, or some such thing, under the side of the foot near the toes at first, by which it will be turned a little on the heel, and after a little longer time put the leg fairly on the heel and calf. The influence of the

muscles which we had to conciliate while the injury was recent, — while the fragments had no connection with each other, and the muscles easily excited may in ten or fifteen days be less cared about, for many of the sharp spiculæ of the broken bone have been rounded off or removed by the absorbents, the muscles themselves have become accustomed to the injury which had been inflicted, and the ends of the fracture do not move so freely on each other as they did when the injury was more recent, in consequence of the new-formed connection which has been established between them.

### LECTURE XXXVIII.

Fractures (*continued*)—Ununited fractures—False joints—Fractures of the tibia—Pott's fracture—Fractures of the patella—Fractures of the femur.

I MENTIONED that a man may sustain a fracture of one of the long bones of the extremities without there being much apparent deformity — a fracture of the tibia, for instance, may not be attended with much displacement of the fragments, if the fibula should not be broken, as this slender bone will act the part of a splint to the injured tibia, and prevent deformity. When there is but one bone, as the femur or humerus, it is easy enough to detect a fracture, but not so when there are two, as in the leg or fore-arm; — the tibia or fibula may be broken without the other — where the tibia is fractured, and not the fibula, you can always make a very handsome leg; but much will depend on the part of the tibia broken; if the fracture traverses the upper broad extremity of the bone transversely, there may be but little external evidences of the occurrence, should even the fibula be a partaker of the mischief. In a fracture of the tibia, for example, the deformity may be angular, as it is in the most usual situation — namely, the middle of the bone: when the great muscles of the calf act, they will throw the broken extremities forward if they hitch against each other, but if the fracture traversed the thickness of the bone *very obliquely*, there may be little or no angle formed at all, but the lower fragment be merely drawn upwards, behind, and nearly parallel to the upper one; this is the displacement in the direction of the *length of the bone*. If the fracture be transverse, or nearly so, and the broken surfaces be broad, the limb may neither be shortened nor bent at one angle, but the pieces may be merely turned on each other in the direction of their circumference, and the deformity is rather to be observed in the position of the foot than in the leg itself. Now, it may, and does sometimes, happen, that after the solution of continuity in a bone has taken place, the fragments may not be very evidently displaced in *any* direction, and of course there may be no striking deformity — this happens where the pieces are interlocked in each other, or, as may be in some instances, where, from position, there may not exist any disturbing influences to act unfavourably.

Besides those general modes of displacement between the pieces of a simple fracture, there are others of a particular description, depending on some peculiarity in the situation or connections of the injured part. While in fractures, such as I have already alluded to, the bones, however displaced, remain in contact in some point or other, or at least may do so if some soft part does not accidentally get between them, there are some cases where the forces, tending to produce displacement, act by drawing the fractured portions away from each other; such is the case in a transverse fracture of the patella or olecranon. But one of the best examples of complicated displacement of a fracture is seen at the lower extremity of the tibia—in that injury which was first described by Mr. Pott, and gets the name of Pott's fracture.

Before I speak of this, however, I wish to draw your attention to this fact—that however favourable a case of simple fracture may seem to be for ready union—however successfully you may have brought the bones together—whatever may be the care given afterwards to the case,—firm union of the bones may not take place; or having even commenced, adhesion may be arrested in its progress to completion. Now, you can in many instances assign a reasonable cause for such a circumstance, but I can tell you this—that I have seen more than one case of tedious and harassing ununited fracture, where I and others were totally unable to detect a cause, or anything like it. If the end of a broken bone had wounded a large artery in its vicinity, and that an aneurism is formed, there is an end to any hopes of reunion there between the bones; but you may not see such a case as this once in the whole course of your practice; it is curious how unfrequent an occurrence is the wound of a large artery by a fractured bone, but so it is, in some cases of ununited fracture, the cause appears to be simply a want of the necessary inflammation for the adhesive process;—the patient feels nothing; complains of no pain in the part; there he lies, able to eat and drink, and all his functions going on as regularly as they would in any man in perfect health; but day after day passes, and you are surprised at finding that there has been no progress whatever made in the consolidation of the fracture. Well, perhaps after a while you may discover something wrong in the constitution, and that something is generally secondary syphilis; examine him closely and you may discover an eruption on the skin, or some other secondary venereal symptom that will explain the real state of affairs to you. Now, suppose the most searching examination gives no clue to your judgment, have you sufficient grounds to reject the idea that the venereal disease has interfered with the fracture? No—the disease may be lying dormant in the system; I saw one instance where the bones refused to unite, and where there was no symptom whatever of syphilis: I, however, tried mercury with it, and out came a crop of true venereal eruption; in such a case as this union will follow the use of mercury. It is said, and I believe truly, that scrofula will prevent the union of fractures, though I cannot speak decisively from my own obser-

vation. Cancer in its last stage will, I have no doubt, prevent bony union. An army surgeon told me that while quartered in the West Indies, he once had five or six cases of ununited fractures together, and they were long enough under his care to have been in the ordinary course of things, united three times over; these men with their regiment embarked for Europe; on their arrival the surgeon inspected all the men, and on examining these men who had had fractures so long without union, he found all their fractures united, without the patients or himself being at all conscious of when the union had taken place, as their attention had not been aroused by the occurrence of pain or peculiar feeling of any kind; so that you see a change of climate may do a good deal in those cases, and points out a line of treatment which has been found in practice not without benefit. It is said that the fractured bones of pregnant women will not unite, but this certainly is not the case, for I have known them to unite, but I think the process is more slow in them than it would be in ordinary cases; I, however, believe that this is not owing to any peculiar indisposition in the bones to form ossific union, arising out of pregnancy itself, but on account of the restlessness so common in that state. Much disturbance of the limb, causing frequent motion of the bones on each other, will interrupt the union of a fracture, and yet a broken clavicle will unite in despite of motion; many a little child in the country gets a broken clavicle, and the parents, not understanding the nature of the accident, mind it but little; the children continue to play about as usual, and yet the clavicles will heal; I never saw or heard of a case of united clavicle. In some cases you cannot discover any evident cause for this indisposition in the bones to unite, as I have already said; in those try calomel, for although the patients may never have had the venereal disease, many of them will be united through the use of mercury.

Several plans have been proposed to bring about an union in these cases. In my opinion the simplest method, and the one freest from any danger, and which has been often effectual, is to make the patient try to walk about a little, using some simple means to keep the upper piece resting perpendicular on the lower; this has succeeded, and you are told the success was owing to inflammation being excited in the ends of the bone by the pressure and the friction. Now, I do not know what may have originated this supposition, but in cases I saw there was not a single symptom of inflammation appearing in or about them from beginning to end. There are cases, no doubt, where reunion of a fracture was brought about by means that could only be explained by supposing a degree of what may be called ossific adhesive inflammation to be produced — thus you may sometimes bring the bones to heal by rubbing their ends firmly against each other, but if you adopt this plan, remember you must, after the friction, keep the limb at *perfect rest* by a suitable apparatus, and confining the patient to bed for some time. More violent means than any I have mentioned have also been occasionally attended with success, such as passing a seton through the whole thickness of the

limb, and between the disunited ends of the bone; so also has the plan of sawing off the ends of the bone after making them protrude through a wound made in the soft parts—but I am sorry to be obliged to say that I have seen cases where, after putting the patient to all the suffering and sometimes danger of such severe measures, they have totally failed of forwarding in the least the intentions for which they were executed; and what is still worse, they have at times brought the life of the patient into the greatest danger, and some of them have been even carried off by the violent attacks of erysipelatous inflammation they caused. It, therefore, seems to me extremely doubtful if these operations should be considered as legitimate or fair measures to try for the relief of what after all is but an inconvenience, and probably if left to themselves, or treated in a milder manner, only a temporary one, for it is impossible to say that the apparently most intractable and hopeless cases of this kind, may not unexpectedly unite without the incurring of any risk whatever.

When what are called *false joints* are formed between the ends of ununited fractures, they bear little or no resemblance to the natural formation of a perfect joint—they never have, for instance, that incrustation of cartilage seen in all original articulations, nor have they at best more than a mere trace of anything like a synovial membrane; they are joined by an irregular ligamentous substance in general between them; here are several specimens before you that bear out the assertion; here is one on a large scale—you observe it is a fracture of the lower end of the femur near the condyles. Some of these false joints have the ends of the bones rounded, and a hard polished substance like ivory here and there deposited on them; sometimes the bones assume a form that more resembles the elbow or other ginglymoid joints, but this is infrequent.

As the leg will often present no great deformity if the tibia alone is broken, it will be easily conceived that there will be as little if the fibula be fractured, the tibia remaining entire; but this holds good only when the fracture of the fibula takes place somewhere in the two superior thirds of its length, which, in fact, is not commonly the case; for the bone is here protected by a cushion of muscles covering it and protecting it against direct violence. Now, the most usual situation for the fibula to be broken is between two or three inches above the point of the external malleolus, and the injury is not generally caused by direct violence, although of course it sometimes may be. This is the weakest and least protected part of the bone, and is, moreover, most exposed to the effects of the common occurrence of shocks caused by leaping from a height. In Pott's fracture of the fibula, the bone gives way just where it ceases to be covered by muscles, and from this circumstance an error might be committed by examining this part carelessly—you might suspect a fracture where there really was none, for just at the place where the fracture generally is, the finger will sink, but pressure on the part, or even near the head of the fibula, where, from the length of bone, a slight movement will cause a considerable extent of motion at the

seat of the fracture, will always satisfy you on the point — I can add little or nothing to Mr. Pott's description of this accident. When a man comes heavily to the ground on the flat of his foot, it yields more on the inner than the outer side, and a dislocation of the foot outwards happens; but this cannot take place without a fracture of the fibula, the lowest part of which being thrown outwards by the side of the foot, causes fracture where the bone is weak, and the force of the shock transmitted strongly; again, as the inner margin of the surface of the astragalus that naturally supports the tibia is thrown inwards, a fracture of the internal malleolus, or a rupture of the strong internal lateral ligament of the ankle, takes place. Sometimes we find no distortion of the foot, nor anything else remarkable, except a swelling about the ankle, such as might be caused by a sprain, but more generally the deformity is considerable, and a single glance will tell what has happened; the ankle-joint has acquired a very disproportioned breadth; the sole of the foot has an inclination outwards, and a little backwards; a considerable tumour is seen on the inside at the seat of the malleolar process of the tibia; on the outer side the fibula slopes inwards towards the tibia, and you can sometimes detect a depression where the upper extremity of the lower fragment has passed inwards from the lower end of the upper piece, in consequence of the outer malleolus being turned outwards by the foot. After reduction you may lay the flexed leg on the outside, or treat the limb in the manner directed by Dupuytren, Sir A. Cooper, and others; you will of course use proper measures to subdue inflammation in and about the joint. Should this accident be accompanied by a wound made by the tibia, you will adopt the advice given you of dressing it with lint steeped in the blood which comes from the wound.

**FRACTURE OF THE PATELLA** most generally takes place by the action of the powerful extensor muscles of the leg, and before the patient comes to the ground, and when so, the fracture is transverse at the middle of the bone; but it may be above this part, as you see in this preparation; students sometimes find it difficult to comprehend this explanation of the manner in which such fractures are produced, from the fact that the muscles are not simply attached by their tendon to the upper margin of the patella, but that this tendon, as it were, encloses the bone in its strong fibrous expansion, and is continued there into the ligamentum patellæ, and that this structure must greatly increase the strength of the bone; but this conclusion arises out of another mistake as to the direct action of the muscles in effecting the fracture — it is not by tearing one-half of the bone from the other, but by breaking it across the condyles of the femur when the knee is bent; the force requisite to cause fracture in the first way should be very great, and no small part of it be lost in overcoming the resistance of the ligamentous expansion covering the bone, but in the second way it need be but trifling comparatively, as the upper and lower fragments have been acted on at an angle with each other, and can have a proportionately less protection from its fibrous covering.

Very soon after the fracture a swelling comes on about the parts ; but this is owing to effusion, and not to causes such as would induce you to delay setting a fracture in other bones, — you should, therefore, proceed to your measures for the reparation of the injury at once.

Now, you have found in many of your books on surgery, I suppose, that where the synovia of a joint can insinuate itself between the fragments of a fracture, ossific union is all but impossible ; at least the access of synovia is given as a cause of the want of union in certain cases of fracture — but there is no ground whatever for any such supposition, for the patella *will* be united by bone if the pieces are only kept steadily in contact. Here is a preparation of a transverse fracture of the patella perfectly united by bone from end to end, and here is another where the bone was broken into three pieces — one fracture was the ordinary transverse one, and one fragment broken into two by a perpendicular fracture ; well, you see the latter is entirely repaired by bone, while the halves of the transverse one, next the edges of the patella, are united in a similar manner, and the centre half has only a thin layer of ligamentous matter joining it to the contiguous fragment. It seems odd how the idea of synovia interfering with the formation of callus could have entered any man's head, who had opportunities and a disposition to investigate the subject. The patella is sometimes traversed by a perpendicular fracture ; this injury, it is obvious, cannot be caused, like the other, by the action of the muscles, but by direct violence, nor have the muscles any power to keep the pieces from lying close to each other : now, this fracture unites by bone like a fracture having no connection with any joint, although it is as much exposed to the imagined action of synovia as the transverse fracture is. Here is a curious preparation where the patella is broken into three pieces, an upper, a middle, and a lower — the middle piece being consolidated to the lower by bone, and to the other by ligament. In all those preparations of fractured patella on the table, the upper piece has acquired a ligamentous connection with the femur. There was an old apprehension, long entertained, and perhaps is still, by some, that in these fractures over a joint (such as that of the patella and the olecranon process), there is danger of irregular growths of callus towards the articular surface, and of those insinuating themselves into every space made by the irregular surfaces of the joint ; if this were the case the future motions of the articulations would be rendered very limited, and otherwise imperfect, but no such thing ever does occur, as far as my experience goes : in those preparations the articular surface of the united fracture is as smooth as the part was before it was broken ; you need never be afraid, therefore, that, if you keep the fractured pieces in contact, the joint will receive any detriment from osseous projections, although a rule of practice has arisen from the error ; viz., to move the joint a little every day with the intention of presenting what would never happen ; while, on the other hand, your moving the leg on the thigh every day, during your

treatment of fracture of the patella, will have the effect of lengthening the ligamentous substance by which the pieces are to be joined, and weakening the limb in the same proportion. But there is likely to follow even a worse consequence from this passive motion of the limb, as it is called, besides even the chances of creating inflammation, and it is this: when the ligamentous connection between the broken pieces is, from mismanagement, or this stretching, caused by flexing the leg a little every day, allowed to become long, the limb is unable to support the weight of the body, or to take its share of raising it in walking, or in going up a flight of steps, as the other limb does, because a part of the shortening of the muscles in their functional contractions is lost, and the consequence is that a very trifling exertion, indeed, may produce a fracture of the patella of the opposite side, and, in fact, this second fracture is by no means an unfrequent occurrence at a longer or shorter period after the patient has begun to take his ordinary exercise when the first injured patella is sufficiently strong to bear it.

How are we to treat a fractured patella? Your first, and indeed almost your entire attention must be directed to the muscles acting on the pieces of the fracture. You put the leg in the extended position, and flex the thigh on the pelvis, by which you resist, as much as mere position will permit, the displacement of the pieces: now, here I should wish to remind you that there is no displacing influence to act on any but the upper fragment, except, indeed, flexing the leg on the thigh can be called one; the lower fragment is held to the tibia by the strong ligamentum patellæ. Having the leg and thigh placed in position, it was the custom to put a strap of calico longitudinally by each side of the patella, and then to put two or three turns of a circular bandage below, and a few turns more above the patella, binding down the side slips; by tying the upper and lower ends of these slips together, the circular rollers were made to approach each other, and of course to approximate the two fragments of the patella to each other. So far, this looks well, but the roller round the top of the leg presses on the ligamentum patellæ, and so turns the upper edge of the lower fragment forwards towards the skin, instead of upwards towards the broken edge of the upper fragment; they, therefore, cannot meet; there is no occasion to push the lower fragment up to meet the other, as it is not displaced; your best plan will be to put the leg and thigh into a hollowed straight splint, with a foot-board to it, and some studs fastened to the sides about the level of the knee-joint, or a little lower, and having placed a strap across the front of the thigh, just above the patella, draw down the upper fragment to its proper level, or as near it as you can, and confine it in its place by the cross strap, which is to be fastened to the studs or buckles at the sides of the splint. You must keep the limb perfectly quiet for at least a month.

There are three situations where the femur may be fractured that I should wish to say a word about without pretending to go deeply into the subject. Fracture about the centre of the bone is easily

recognised; and although three or four methods of treatment are practised, the pieces at the conclusion are often found overlapped. Now, I believe one reason for this is, the too close observance of Pott's great rule in fractures; as I said before, it is not possible to relax *all* the muscles of a limb, and the best you can do is to divide the relaxation as evenly as you can between antagonist muscles. What I would advise you to do in this fracture of the femur is — to lay the limb on its side for a few days, until the swelling is gone down, then place it on the heel, and give it a stretch every day — from day to day (if it is inclined to spasms), and at last the muscles will cease to give any resistance. As far as my experience goes, I think the straight position of the limb is the most successful in preventing shortening or deformity, of any I have seen tried.

In fracture of the femur near the lesser trochanter, you cannot act upon the upper piece at all; you find it drawn forwards by the action of the psoas and iliacus, and other flexors of the thigh attached to it, while the extensors cannot counteract their power, being chiefly connected with the member below the fracture; you see the lower end of the upper fragment projecting forward, and no application of mechanical ingenuity can serve to bring or retain it on a line with the lower fragment. Your sole attention must, therefore, be given to the position of the limb below the fracture; you flex it upon the trunk until you bring the two pieces on a line with each other, and retain them so, keeping the leg semiflexed on the thigh.

Fracture of the neck of the femur is divided into those within, and those external to the capsular ligament. We seldom see an instance of the former before the age of forty, but after forty years of age we often meet it, and even sometimes from so trifling an injury as tripping on a carpet; a common bruise and fractured neck of the femur might be confounded with each other: if the fracture be external to the capsule, the affected limb may be much longer than the other, and continue so for two or three hours, or even for three days, but if it is within the capsule the limb will be shorter. When you come to a case of this kind, and throw off the bed-clothes, you see the limb lying passive, and the foot resting on its outer edge; it may be of the proper length, if the muscles about the hip have received much contusion, although at your next visit, perhaps, it may be a good deal shorter than its fellow. In examining one of these cases you should first make extension of the limb, and then if you rotate it you may probably be able to feel a crepitus. You will be able to distinguish this case from a luxation of the femur upwards and backwards by the position of the limb; in ninety-nine cases out of an hundred, you will find the toes turned outwards in the case of fracture, while in the hundredth case, perhaps, the toes will be turned inwards, as they would be in the luxation; if the case be fracture you will find equal resistance in turning the toes inwards or outwards, but in dislocation, while you can turn the limb inwards, as easily as you could turn a key in a lock, you cannot at all turn the

limb outwards.\* Mr. Guthrie has given an excellent paper in the *Med. Chir. Trans.*, on certain cases of fractured neck of the femur where the toes were turned inwards, and the causes that produced this novel position: if the fracture should traverse the neck in such a way that the lesser trochanter remains with the neck, the psoas and iliacus muscles, which are the great rotators outwards of the thigh, can no longer act on the limb, and the balance between the antagonist rotators being thus destroyed the muscles that rotate inwards preponderate, and produce this unusual position witnessed in this particular case.

Much controversy has arisen on the question — Whether fracture of the neck of the femur (particularly within the capsular ligament) ever united by bone. I have taken some pains to investigate this question, and for my own part, I must declare I have never found anything like an osseous union of a fracture of the *cervix femoris*; I have had opportunities of examining such cases after death, and have uniformly found the union to be effected by thickening and adhesions of the capsular ligament of the joint, and ligamentous productions derived from sources in the immediate neighbourhood of the injury.† I do not believe osseous union can take place, and am sure that those who say they have seen it have mistaken disease of the head and neck of the thigh bone for fracture; I have many specimens that might be so mistaken, if the previous history of some of them was not known. Many causes have been supposed for this want of bony union, some of which I have already mentioned; it is said amongst the rest that it is attributable to a deficient vascularity in the head of the bone: however this may be, I think the difficulty of keeping the parts motionless on each other would be sufficient of itself to account for it. Surgeons hold the opinion, that as we cannot unite a broken *cervix femoris* by bone, it is useless to do anything in such a case, but leave the matter to nature; now, I believe we ought always to be more particular in our treatment of these cases than we generally are; for if, in the first instance, they are neglected, the patients will never be able to use their limbs. Although when the patient first gets up, he has no power in the injured member, yet in time he will get the use of it, and in three months he will have considerable power in it, from the new arrangements nature will have made, by the thickening of the soft parts around the joint. For a month or six weeks at least after the accident we should keep the patient in bed. Various ingenious contrivances have been invented to maintain the broken bones in apposition; as to the use of splints, or those that ought to be used, I have but one thing to say — let the outside

\* See a remarkable case, mentioned in the third volume of the Dublin Hospital Reports, of dislocation of the femur on the dorsum of the ilium, where both active and passive rotation of the limb, inwards and outwards, could be performed with facility, and without uneasiness to the patient.—*Ed. of Lect.*

† For a detailed and satisfactory account of the grounds on which this opinion was founded, see a valuable paper, by Mr. Colles, in the second volume of the Dublin Hospital Reports.—*Ed. of Lect.*

splint never be broader than a common lath — if it is a bit broader you cannot bind the limb to it so as to prevent its rolling in it ; we are still in want of a proper apparatus for the treatment of this fracture — even Dessault's complex one does not, in my opinion, answer the purpose.

When old people come under our care with this accident, we must treat them very differently from younger ones ; when you find the neck of the femur has been broken more from age than violence, never tie them up in splints — if you do, the certain consequence is, that they get feverish and restless — they fret — and if you persevere in keeping the splints on, they will die in a week. I do not know why this is so — but I have seen it so often — I have had such repeated experience of the fact, that there is no doubt on my mind as to the cause and effect ; in old people, therefore, you should merely, for appearance sake, put a bandage lightly on the limb, and support it with pillows ; besides the decided ill effect of splints on aged persons, they are unnecessary, for in such patients anything like useful union is of course not to be thought of.\*

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## LECTURE XXXIX.

Fractures (*continued*).—Compound fracture.

THE olecranon process of the ulna is a good deal exposed to injury ; it is generally broken by blows or falls on the elbow, but it is often broken by the action of the triceps muscle. There is no difficulty in recognising the nature of this injury if the patient is seen immediately after the accident, but swelling about the joint supervenes so quickly that it is seldom seen until the points of reference become obliterated. I have not the smallest doubt on my mind but that a broken olecranon may be perfectly united by bone ; I had a boy a patient with this accident, and after his recovery five or six surgeons saw him, and none of them could perceive the slightest motion between the pieces. The best way to treat this accident is by keeping the forearm in an extended state on the arm, by means of a splint in front of the limb. The olecranon process is sometimes drawn away from the ulna, by the action of the triceps, for an inch or two, or even more, and sometimes for scarcely half an inch ; it is to be

\* If the student makes himself thoroughly acquainted with the anatomy of the neck of the femur by actual examination, and the differences in its *length, figure, direction, and strength*, which sex and age produce in it ; — if he makes a vertical section of it through the head and great trochanter, to observe the disposition of the hard and spongy portions of the bone, in the three great divisions of life ; — if he notices, in a number of examples, the differences he will meet with as to the point of reflection of the synovial membrane from the neck to the fibrous capsule, — he will, I think, attain a clearer elucidation of many of the real intricacies of this fracture, than he had probably anticipated, in respect to the periods it is most liable to occur, and the ways in which it is caused. — *Ed. of Lect.*

drawn down gently and retained *in situ* in the same manner as you would the upper piece of a broken patella. The ulna may be broken in other parts without the radius sustaining any injury — as, for instance, a man in raising his arm to ward off a blow ; in this case you have little to do but prevent motion between the pieces. There is an appearance of the forearm, when both bones are broken, which I never saw but twice, but which I think very extraordinary — the arm seemed as if bent into a complete arch, and yet no crepitus or motion could be felt between the bones — I do not know how to account for this appearance, but that there was a fracture there could be no doubt.\*

When you look at the carpal end of the radius, you would suppose that a fracture near it must be very uncommon, yet it is really the most frequent seat of such accident in that bone — but why I cannot say ; it is not easily discovered on account of the swelling which rapidly supervenes here as well as in other injuries about the wrist and elbow. This fracture takes place about an inch and a half above the carpal end of the bone ; the deformity produced, precisely resembles what Dessault calls a dislocation of the carpal end of the radius, and I am very much disposed to think he sometimes mistook one case for the other. On looking at it posteriorly there appears a depression in the forearm about an inch and a half above its lower extremity, and a considerable swelling over the carpus and metacarpus ; on looking in front there is a fulness, as if the flexor tendons were thrown forwards, which extends upwards about one-third of the forearm, and below to the annular ligament of the wrist ; — the end of the ulna is seen projecting more or less towards the palm and inner edge of the limb, and can be moved backwards and forwards very readily ; — a depression *may* be felt in the radius behind at the seat of the fracture, but on trying to move the broken ends on each other, no satisfaction as to the nature of the injury can be obtained from mobility or crepitus ; no crepitus can, by any manœuvre, be felt until you extend the parts by holding the patient's hand in yours ; — if it is his left hand take it in your left hand, locking your thumb in his, and make extension ; when you make extension, all the deformity readily disappears, and by rotating as well as extending the hand, you can then detect the crepitus. Should this case be mistaken for sprain, or luxation of the wrist, the treatment will, when it is too late, be found to have done no service : the deformity will remain for life ; there will be for months stiffness of the limb, and pain in attempting to flex the hand and fingers — but at some distant period the use of the member will be quite restored ; the hard swelling on the back of the hand, for it does not feel like that of effusion, is caused by the carpal surface of the radius being turned slightly backwards, carrying the carpus and metacarpus with it out of the proper direction, and this is produced by the extensor mus-

\* This is probably what is known by the name of the " Green-stick Fracture," described by Mr. Wilson in his work on the Skeleton, and by Mr. Hart in the first number of the *Dublin Journal*. — *Ed. of Lect.*

cles of the thumb, the resistance being removed by the fracture ; an effusion into the sheath of the flexor tendons accounts for the fulness in front. The treatment I have found always successful is this : a thick and firm compress is placed transversely in front of the radius, over the seat of the fracture, but without touching the ulna ; it should be bound on firmly with a roller ; a well-fitting tin splint is to be placed in front and behind the forearm, and a very narrow wooden splint along the edge of the ulna : the two first should extend to the roots of the fingers, and become broad to give a firm support to the hand. The object in this treatment is chiefly to prevent the carpal end of the radius from being drawn backwards. While the apparatus is being applied, an assistant should make gentle extension, and keep the hand in a state between pronation and supination.\*

Fracture of the neck of the humerus, that is, between its tubercles and the insertion of the muscles forming the margins of the axilla, is not of very rare occurrence, and the nature of the accident is not always easily discovered, but might be confounded with others of a very different description ; by passing your hand well up into the axilla, and motion being given to the humerus, you will be able to detect the crepitus and motion in the fractured portions ; we do not well know how to treat this accident I believe, because we cannot get an apparatus to bear on the fractured part — however it be, we are still in want of an effectual mode of keeping the bones in apposition. The reduction of the deformity (which may occur from displacement of the humerus inwards or outwards) is easy enough — all the difficulty is in retaining the fragments in proper apposition.

A transverse fracture of the lower end of the humerus can occur, and may be mistaken for a dislocation — indeed I do not think any surgeon could distinguish between them by merely looking at them ; examine the case in this way, — take firm hold of the body of the humerus, move the condyles, and observe whether they move with or on the shaft of the bone, and if you distinguish this fact, you can no longer mistake the nature of the case. Fracture of the internal condyle sometimes occurs, and it is generally combined with dislocation ; all you can do is to put a compress on the condyle, and make pressure with sticking plaster and a roller ; I believe this is a case where the old-fashioned way of treating fractures by white of egg and flour, or linen dipped in glue, or brown paper wetted, and moulded on the part, would answer very well ; I got this fracture once myself, and this is the way I was treated in the country, and I have now as much power in that arm as in the other.

Fracture of the clavicle may be caused of course by a blow ; it

\* In a subsequent session Dr. Colles's directions were these : "In fixing the bones properly to make a cure without deformity or debility, your great care must be that your splints are sufficiently narrow ; place one along the edge of the ulna, which is to reach from the elbow to beyond the hand, in order to support the hand, and then another narrow one on the front of the forearm, between the radius and ulna, and then a roller over these. If a fracture of the lower end of the radius be badly set, the patient will not get the use of his fingers for a long time. — *Ed. of Lect.*

may happen from a fall on the shoulder, and this is, perhaps, the most common way it happens ; for from its curves, any force applied in a line from the acromium to the sternum will act on the clavicle in a direction in which it can offer little resistance against fracture. It has been broken by drawing back the shoulders violently. In whatever way it meets the accident, the fracture is very easily discovered, either directly by the deformity, by the position of the shoulder, or by running the fingers along it. You at once perceive that the sternal end is more prominent than the acromial, and that the latter is often, in part, lying behind and below the former. Surgeons formerly, and bone-setters in the country still, on observing the prominence, imagined that it was the sternal end that had started forwards, and accordingly every effort was directed to push it back into its place by compresses and bandages until it should come upon a level with the other piece ; this is not the case — the weight of the arm and the action of the muscles, displace the outer fragment which has lost its support, while the inner one remains in its natural position. Now, even when a correct notion was had on this point, a very absurd method was had recourse to, to maintain the pieces together after coaptation — this was by drawing the shoulders back forcibly, and retaining them in that position by a bandage that passed from one shoulder in several turns, in the figure-of-eight fashion, across the back ; it is evident this could not in any way tend to elevate and bring forward the fragment that was really displaced, but rather to increase the deformity. A very complex method has been invented for bandaging up a broken clavicle, but it will generally do very well by much simpler means : — the indication is to bring forward and to elevate the fragment attached to the acromion process, and this may be accomplished by placing a wedge-shaped pad in the axilla — its broad end uppermost, and then binding the arm to the side with a roller, and supporting the elbow and arm in a handkerchief slung from about the neck. It is very soon consolidated.

Little need be said of fractures of the ribs, for if the pleura or lungs be not wounded (which they sometimes are), the broken rib will heal readily enough, if motion between the pieces is prevented by a broad roller or bandage put round the chest, with sufficient tightness, and I dare say often without even this precaution. You will often fail to discover fracture of a rib by feeling with your fingers, particularly in fat people ; if you lay your hand flat on the side of the chest over where the fracture is suspected, the ordinary motions of respiration will frequently give you the distinct feel of crepitus ; if not, make him cough, or draw in a full inspiration ; but should all fail, and that you have any reasonable grounds for suspecting fracture, you had better put on the broad bandage round the thorax. If the patient complains of very acute pain in one particular spot, at each inspiration you may suspect that a spicula of bone is pricking the pleura, and you will find it necessary to keep a sharp look out for inflammation of the membrane, and employ the lancet freely, if necessary. In such a case as this you often cannot attempt to bind the

ribs — I have seen a patient almost ready to expire on attempting to tighten a roller round the chest. Emphysema is sometimes a consequence of fractured ribs — I have already spoken of this symptom, and need say nothing farther on the subject.

## COMPOUND FRACTURES.

By the term compound fracture is understood the complication of a wound of the skin and other soft parts over the broken bone, and we find that this wound may either render the case hardly more troublesome or dangerous than one of simple fracture, or it may be the cause of the most imminent danger to the patient's life. I know nothing in surgery that requires more judgment, more careful discrimination or prompt decision on the part of the surgeon than a case of severe compound fracture — for the mere appearance of the limb, and the true source of danger are often very remote from each other; one case may be apparently in the most frightful condition immediately after the accident, and yet few or no bad symptoms may be anticipated, while another would show little to create alarm, and yet immediate amputation of the limb be necessary to save the patient's life. The first circumstance connected with the injury which makes a material difference in these cases is, the way in which the external wound was produced; it may be caused in two ways — either the wound in the soft parts is made by the external violence that fractures the bone, or by the bone itself after being fractured, pushing through the soft parts and causing the wound in them; there is a great deal of difference in the prognosis in the two cases — the first is much more dangerous, because there is more contusion, while in the latter there is merely laceration, and such a wound you might heal by the *first intention*. When the bone protrudes, it may retire again without the aid of surgery, or it may remain out. Compound fractures, in which the external wound is made by the protrusion of the bone, generally do as well as simple fractures, which shows that it is the contusion of the soft parts that causes the mischief, and that if the wound be made by puncture and laceration, it will, just as in wounds that have nothing to do with fractures, run its course much more favourably. Although it would be of great importance to get a compound fracture into the condition of a simple one, yet I am far from thinking that we should try to heal every compound fracture by the first intention; for, if there has been contusion, there must be suppuration, but should the wound be made by laceration I would bring the parts together, and give them their chance; — thus, suppose a man falls off a height, and comes with most of his weight on one leg, the tibia may be broken, and the broken end be spiculated, and thrust through the soft parts — it may have a frightful look, yet it may heal as a simple fracture; but suppose a man falls off a scaffold, and some heavy stones fall on his leg, making a compound fracture, how will it go on? — Why, for three or four days there will be fever and irritation, and then

suppuration begins — those parts of the soft tissues that sustained the brunt of the contusion will slough and come away — after a time the discharge will grow less and less — granulations will shoot up, and the wound will heal by the second intention : this is the most favourable view of such a case — but if the patient be of a very bad constitution — a drunkard suppose, — instead of a good suppuration coming on, there will be great pain in the limb, but there will not be a swelling, such as you would expect to correspond with the degree of pain — the pain increases, the pulse is not full, but there is a shabby compressible feel in it, and at length the limb goes into mortification without the occurrence of inflammation. No doubt the leg of a strong, healthy man may likewise fall into gangrene, but this is owing to the great effusion, and the high degree of inflammation : now, these two cases could not be treated alike — in the drunkard's case, bleeding would be the very worst thing you could do, while in the second case bleeding is the only thing to save the patient's life : but suppose even a case goes on to suppuration favourably, still the man is not safe, — for instead of progressing, as I have mentioned, the matter may extend deeper and deeper into the limb, which gets swelled, and the patient becomes hectic ; you examine about this swelling, and you find one spot soft, the softness appearing to be an inch from the surface, and you are sure that it is an abscess or collection of matter, for by pressing it you see the matter oozing out of the wound — what you are to do here is to make an opening into this abscess — let out its contents, and for the first day introduce a dossil of lint into the wound you have made ; after the first day you need not put anything into the wound, but let it discharge away, and in a week the hectic fever, and everything else alarming, will have disappeared ; — sometimes the bones themselves will be deadened by the violence, and you will have to amputate on account of this complication, but one piece of advice I give you — never be in a hurry to amputate for a compound fracture ; many a very unpromising case of the kind has turned out well without mutilation or other injury, and the operation itself for removing a limb that has sustained a bad compound fracture does not seem to me as successful as might be supposed. If you find the hectic fever has arisen partly from a local, and partly from a constitutional cause, you may amputate *sooner*, but if it originates entirely from a local cause *delay* the operation. In a case where the bones, muscles, and everything have been crushed into a hopeless mass, by a broad wagon wheel, or the fall of some heavy weight, of course you have nothing for it but amputation the moment the first shock has passed over. Now, after suppuration has been fairly established, and you would expect soon to find things improving, the quantity of matter becoming less and less, the wound filling up with healthy granulations, and the patient's health and strength in progress of complete restoration, you are disappointed to find the patient continue feverish — he is troubled with night sweats, his strength rather declining, his appetite worse, and the wound uneasy, and discharging more

matter than it should do — well, you find, perhaps, that all this disturbance is owing to a small bit of loose bone, which will, in a little time, be discharged, and everything will immediately begin to improve. When you are called in and find the bone protruding, you may often be able to reduce it easily, provided you avoid frightening the patient, or using the least violence, by not attempting to make the leg straight until you get the exposed bone completely within the wound. But still the best directed efforts may fail, and if you cannot get the bone back into its place, how are you to proceed? Your first consideration is to know the real cause of the difficulty — what it is that obstructs the reduction; suppose it is the tibia that is the subject of the injury — it is always the upper fragment that protrudes, and it lies in front of the lower portion with the intervention of the skin that naturally covers the skin below where the fracture has taken place; now, the protruding piece of bone is not in the same line as the lower fragment from which it has been separated, but seems to project forwards, and if you try to bring them on the same line before reduction of the protruded piece, this last will press on the skin behind — it will consequently cause a firmer constriction in the opening through which it made its way out, and the more you try to make extension the closer it is girt — you cannot, in any case, as the common expression is, draw the protruded bone back again through the wound through which it came out, but you draw the soft parts forward, as it were, over the bone, as it is the lower part of the leg alone that is moveable and can be acted on by the surgeon; now, if the fracture has been very oblique, the protruded bone will be usually long in proportion, and you might find it very difficult to get it at all into the wound; well, then, to overcome this difficulty with the least irritation or disturbance, there are two methods you may have recourse to — either to saw off the protruding portion of bone, or to divide the constriction on it in the integuments, which made the difficulty of replacing it. Although they tell you the first of these proceedings is rendered necessary if the bone which is sticking out through the skin be long, pointed, and slender, or if it is denuded of its periosteum, yet I am not at all a friend to sawing in any such case — the bone is only held by the constriction of the integuments, which you can easily remove by introducing a sharp-pointed bistoury under or behind the protruded bone, and dividing the skin that lies on the lower fragment to the necessary extent; it is not necessary to make the incision as long as the piece of protruded bone; in most instances, merely enlarging the wound it made will often be sufficient for the purpose of getting the upper protruding fragment into its proper place, and when this is done, the case will generally go on very well, but sometimes you will have to cut through the soft parts to a level with the end of the protruded bone, or even below it. Some surgeons, who pride themselves very much on their treatment of compound fractures, will tell you that they have left such a case as this, with the end of the bone protruding, and that after a time it gradually retired into the wound; —

now, this did not happen, but I will tell you what did — the pressure of the protruding bone upon the skin beneath caused an absorption of it, and then the bone of course got back into the wound. sometimes, though very rarely, the ends of the fractured bone become necrosed, and a new osseous shell is formed between them, and enclosing them.

I can hardly express, as strongly as I would wish, my advice to you to avoid anything like violence in your trials to reduce a protruded piece of bone, or in your subsequent treatment of such a case; not only where the bone protrudes, but in every possible case of compound fracture, the greatest gentleness is required — the most perfect quietness and immobility of the limb; attention to the effects of the accident on the patient's system is almost all you have to do — if nature is not interfered with she will accomplish the rest; — avoid all poking into the wound — and arrange matters in the first instance that when suppuration is formed the matter may be conducted off, and everything kept clean about the limb, without the necessity of moving it; — on this account purgative medicines should be very sparingly administered, and not without urgent necessity, as the disturbance caused by their operation will affect the limb. If fragments of bone appear at the wound, remove them if they are loose, but if you find, on trying to remove some of them, that they have any firmness of hold below, there will be much less risk in leaving them there to be loosened by suppuration, than in the employment of any means that may add to the irritation of the parts for their removal. An inflammation which must follow so severe an injury as a compound fracture, may, with judgment and discretion, be often kept within very moderate bounds, and be of trivial consequence; but if there be added to the causes that induce this inflammation any rough treatment in the first instance, any irritating applications, it may attain a height beyond your control, and mortification be the consequence, from which even amputation may not save the patient's life.

A compound fracture may produce death, either by violent inflammation and gangrene, or at a more remote period, by the sinking of the constitution, from profuse suppurations and hectic fever. The periods at which patients die from compound fracture are very variable — I have seen a patient die in forty-two days after the occurrence of the fracture, but this event, when it does happen, is generally earlier; — when the patient is up, and apparently doing well, and trying to walk about a little, the limb is sometimes attacked with an inflammation resembling erysipelas, and this is followed by suppuration — now, this is owing to a dead bit of bone remaining in the wound; many abscesses may form in succession up the leg — these you must open the moment you observe them. Patients after recovery from compound fracture will occasionally, for a long time, be subject to swellings of the limb, the swelling increasing towards evening, and you should always tell him that such an occurrence may be expected; — all you have to do for this is to use frictions, sea-water, bandages, &c.

Now, there is one description of these cases which looks terrific, and which it was formerly taught was a case that always required amputation, and for which I have myself amputated, — it is this — the inner ankle with a good bit of the shaft of the tibia may be broken off, and the whole ankle-joint be perfectly exposed, and looking so frightful that you would say “*that case can never be cured except by amputation*” — now, this is not at all a case for the operation, and if properly treated the case will do very well, and the patient will recover the use of his foot, with a stiff ankle-joint, however. The man to whom I was pupil was very fond of amputation for every kind of compound fracture, and he operated as well, and as dexterously as any man I ever saw — yet I never saw a patient on whom he operated for this kind of case, that did not die in consequence — every one of them — they got sickness of the stomach which never left them, a tumid abdomen, &c. ; all the experience I have had tends to show the ill tendency of early amputation in compound fractures. If you must amputate wait at least until the symptomatic fever has subsided. If there is a necessity to amputate after hectic fever has set in, which, as I have already said, may occur, the hectic will immediately subside after the operation, provided this fever be not owing more to constitutional than local causes ; — a man who was in perfect health the moment before he met with the accident, and from which he got a severe shock, is not a fit subject for an immediate operation. Serious hemorrhage proceeding from the wound is one of the cases, where you are directed to amputate ; — but the wound may be in the calf of the leg, and a good deal of bleeding may come from it, and yet it may not be a case for amputation ; just lay a little dry lint on it, and keep the pressure of the hand on it for, perhaps, half an hour, when the bleeding will cease and the case do very well eventually ; but if a large artery should be wounded, the case is of course more serious ; — yet I would not proceed to amputate, even in such a case as this immediately, but would put a ligature on the vessel, and give the patient his chance.

The treatment of the wound in compound fracture differs but little from what you would adopt in other wounds of a similar nature. If it has been caused by the bone it is only a lacerated wound, and, as I said before, may heal very quietly ; you would, therefore, keep the lips gently together by compresses, and lay a little lint steeped in the blood that comes from the wound over it, and leave it there ; some more lint steeped in cold water might be kept constantly on the limb about the part, or any other contrivance that will better answer the purpose of keeping it moderately cool. Should the wound, however, have been made by external violence, or if it is swollen and tense, you know what must follow, and must adopt the ordinary methods employed in the treatment of contused wounds. In some of these cases you have to take blood from the patient's arm, give him opiates, and keep him for a few days on low diet, while in others you will see sufficient indications for treatment the very reverse ; — namely, tonics and stimulants, animal food, and wine, or

porter. You can make no mistake as to your course in these instances, if you have but an adequate knowledge of what is required in wounds in general.

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## LECTURE XL.

The venereal disease.—Gonorrhœa—Affections resembling gonorrhœa—Treatment—After consequences.

WE have now to consider a disease which yields to no other in importance,—one which will be likely to come daily before you in one shape or other, and in the management of which you will have occasion for the exercise of sound and well-regulated judgment, and above all, a mind divested of several prejudices and preconceptions which are likely to be engendered in it before you have attained an adequate experience of its difficulties and intricacy. The venereal disease of all others requires the greatest delicacy and caution in its treatment, and yet in those not fully prepared by actual observation to build a correct judgment on—by every pretender to medical knowledge, almost every man who has ever had the disease, be he of the profession or not, thinks nothing can be more simple and certain than its characters and treatment. That neither one nor the other is quite so obvious, however, would be proved, if proof were necessary, by the multitude and variety of opinions which have been broached, within the last few years, on the two great points of diagnosis and cure. The soundness of long received doctrines and opinions has been of late doubted and undermined, and ingenious speculations have, it would seem to me, taken the place of the deductions from practical observation, in many instances. I will not, however, stop to examine into these disputes, but just tell you what my individual experience has taught me of the matter.

The venereal disease has been divided into gonorrhœa and syphilis;—whether these two affections arise from one and the same virus, is a point which I do not think it would be worth your while to lose time in discussing;—but one thing is certain—the treatment is very different. There are, I think, quite sufficient grounds for believing gonorrhœa to be more than a simple purulent discharge—that it arises from some peculiar virus, as it is capable of being propagated in an identity of form, by contact, from one person to another: but except in this, and in the way the infection is usually received, there is scarcely any feature or consequence in common to it and syphilis. The latter we know has no tendency to wear itself out, at least we see no such tendency in these countries,—while, on the other hand, it is equally certain that gonorrhœa, after a longer or shorter time, say in the course of four or five weeks in a healthy temperate man, who is not obliged to exert himself much, will wear

itself out, without any particular treatment having been had recourse to. If gonorrhœal matter be taken from the urethra and applied to the eye, for instance, it produces a violent inflammation of the conjunctiva, having characters sufficiently peculiar to allow the term gonorrhœal ophthalmia to be given to it, but it never causes the true venereal iritis. If it be applied to a raw cutaneous surface, it will of course produce an ulcer, but that sore will be totally different from any caused by the syphilitic poison — it will heal by common local remedies, and is never followed by those constitutional or secondary diseases that tell us of a venereal virus lurking in the system, and for the speedy and secure treatment of which mercury must be exhibited. How different is a bubo arising during the progress of syphilis and gonorrhœa — the first strongly tends to suppuration, the second seldom or never suppurates: but to this I shall have occasion to refer more particularly at another time. I merely notice these few obvious differences to impress the better on your mind how unnecessary, and therefore how improper, it would be to put a man under a course of mercury for a simple gonorrhœa.

The symptoms of clap appear at uncertain periods after connection — I have known them to appear in two or three hours after, and sometimes not for fifteen or twenty days; the general period, however, for them to show themselves is from two to eight days. The first symptom is a rather grateful sensation along the urethra, next comes an itching about the part, and this gradually changes into a sensation of scalding; the penis becomes turgid, and there is a peculiar redness and fulness in the glans, with a purulent discharge at the orifice; if allowed to go on, the scalding and discharge increase sometimes to a very distressing degree, but at length both begin to diminish, and, if left to itself, it may disappear totally in three weeks. During its course the patient is subject to painful erections of the penis called *chordee*, in which the organ is forcibly curved downwards towards the scrotum, apparently by the unyielding condition of the urethra, which is felt at these times diminished in size, hard, and tender to the touch, and as firm in maintaining the unnatural bend in the organ as a piece of whipcord. The priapisms that occur in the acute stage of the complaint not unfrequently produce a rupture of some of the small bloodvessels of the urethra, a good deal of blood escapes from the passage, and in general, with some alleviation of the symptoms.\* At first the patient notices that every time he goes to make water, the urine has to burst through a thin film of dried mucus which had closed up the orifice, but there is no mark on his linen of any discharge; there is next a starchy substance seen on it, and a little gluey matter can be squeezed from the opening — about a drop or so — then when the first violence of the pain and

\* I had an opportunity of examining the urethra of a man, some years ago, who died suddenly with symptoms resembling epilepsy, who had had this bleeding from the urethra from gonorrhœal priapism, and I found the mucous membrane at one part divided, in two-thirds of its circumference, as regularly as if it had been cut with a knife.—*Ed. of Lect.*

inflammation has somewhat subsided purulent matter is formed and continues to be discharged, sometimes in a large quantity. Now you are told that the matter so found in the complaint is of a greenish hue, and so it often is, but it is not an essential character of the disease, for you often in healthy persons see it just the colour of the pus of a healthy abscess — without any perceptible peculiarity to distinguish it, and you frequently observe pus of a greenish tint where nothing venereal can be suspected, but where the biliary or digestive organs are deranged. The pain on passing water, or feeling the urethra externally, is very generally referred to one particular spot, about an inch or an inch and a half up in the passage, and generally on its under surface, but this *specific distance*, as it is called, is not at all peculiar to gonorrhœa, and therefore can form no part of the distinctive signs by which it may be distinguished from other affections of these organs.

Well, then, it is possible, to confound gonorrhœa with other diseases — indeed, such a mistake is not only possible, but often very likely to occur. I have on a former occasion mentioned that stricture of the urethra is often accompanied by a discharge from the urethra very much resembling gonorrhœa, but those who have no strictures are also often subject to urethral discharges which are symptomatic of urinary disease. There will be a frequent desire to make water, and some scalding in passing it, just as might be complained of in the early stage of gonorrhœa, and these may sometimes subside for a while, but are brought on again by sexual connection even with a woman who never had a venereal complaint; but hard drinking will also bring it on, and then the patient recollects a former attack, and will consider the present as but a revival of the previous one, brought on by his irregularity, and he not having been properly cured the first time. He will tell you he is very unfortunate, for that he never “goes in the way of it” but he gets clapped. If a surgeon but thinks for a moment of the serious consequences that may follow the delivery of a hasty inconsiderate opinion, he will be very careful to examine into such cases. One morning a gentleman came to me in a dreadful state of mind, with a purulent discharge from the urethra, and scalding in making water; he had been just two days married to a widow, and was convinced from his symptoms that there was something very wrong on the lady's part, for he had reason to be satisfied that he could not have been disordered by any one else; now, although I believe there could be nothing in the world that would give him greater happiness than to know that his suspicions were ill-founded, yet he wanted me sadly to convince him that he really had gonorrhœa, and was ready directly to leave his wife. There was nothing really venereal in the case, but you see the great misery you might be the cause of, if you gave a rash and incorrect opinion of such a case; disabuse such a patient's mind in every way you can — if he ever had a clap remind him of what he had then suffered, and how his present symptoms differed from those of his former disease, and that they could not be the same; he will

at length believe you ; keep him a few days on low diet — give him diluent drinks, and his ailment will disappear. It is from the history of these cases, particularly of the manner in which the discharge first made its appearance, that you are chiefly to found your opinion ; where it proceeds from stricture, the discharge will come on, perhaps, the next morning after connection, and there will not in that case be any of those first symptoms that always introduce gonorrhœa, for there will not have been time for them to occur ; the quantity of matter coming from the urethra so early, or immediately on its first appearance, whenever that takes place, will be as large as it would be in a fortnight or three weeks in gonorrhœa ; the scalding in the stricture case will not be nearly so severe as it would be in the other, and if these are sufficient to raise suspicion in the surgeon's mind, an examination with a bougie will decide the question — cure the stricture, and you cure the complaint, and every disposition to it. But if you find no stricture, but a wide urethra, will that be conclusive the other way ? A chronic affection of the bladder, as I have said, may produce these symptoms, whether that affection arise from stone in the bladder or anything else ; well, then, you question the patient on the state of his urinary organs for some time previous, and so come at the truth. But symptoms may come on where no permanent or organic disease of the urinary organs can be discovered, or could have anything at all to do with the matter, and which are hardly possible to distinguish from gonorrhœa, as far as mere appearances go ; a gentleman will present himself to you with these appearances, and sometimes he may have fair grounds to suspect they may be of venereal origin, but sometimes he will declare the thing utterly impossible, except he could have been infected by the seat of a water-closet to which others had access ; the man's age or habits may be a guaranty that he could not be disordered in the ordinary way ; what may it be, then ? Ask him if he is subject to gout — if he is, treat him for gout, and the moment it seizes on one of the limbs, or shows itself anywhere else, that moment the affection of his urethra disappears. Other diseases that wander from place to place, as rheumatism, may, perhaps, have analogous effects on the urethra.

Well, now there is one case resembling gonorrhœa slightly, that might mislead a careless person, which it would be very necessary to discover the nature of ; a patient may get a scalding and a slight discharge, and he will refer the pain to the spot where those who have gonorrhœa usually feel it — but this is not clap, for you find the quantity of discharge by no means in proportion to the scalding, and on examining the parts carefully, you will find a chancre in the urethra, — not at the very orifice, — for that is common, and could not be overlooked at a cursory glance. — but at the eighth of an inch up in the urethra ; great care is necessary to discover this case ; for if you treat it as a gonorrhœa, and that man afterwards gets secondary symptoms of syphilis, of course he will never place the least reliance on your opinion again. Men who have had all their life a long prepuce, which cannot be drawn back so as to expose any part of the

glans, are subject to excoriations and discharges of matter from under it; when such an occurrence takes place after a long interval, and perhaps under suspicious circumstances, both the patient and surgeon might mistake the real nature of the case, particularly as some heat may be felt or imagined in the urethra on passing water; if you cannot satisfy yourself from inspection that the matter does not come from the urethra, just direct some astringent wash, such as a solution of sulphate of zinc, to be injected twice or three times between the glans and prepuce, and perhaps on the second or third day there will not be a trace of the complaint remaining.

As there is no venereal taint in the *constitution* arising from gonorrhœa, unlike other forms of the venereal disease, we have nothing to do but to treat it as a purely local disease; powder of cubebs, in the dose of a drachm three or four times a day, will very often cure the complaint in two or three days, but if it should fail to do this, it will be sure to make matters a great deal worse; the cubebs generally succeed better if it opens the bowels a little. With respect to injections—a variety of all kinds have been used—almost every one has a receipt in his pocket-book for an invaluable injection that will cure all kinds of clap, and every one of them may seem to have succeeded when it was tried, but the truth is that, as many different diseases of the urinary organs have been mistaken for clap from time to time, little reliance can be placed on the efficacy of this or that injection. Some are of opinion that the number of cases met with of gonorrhœa greatly exceeds that of the true venereal disease—for my part, I believe that claps are not at all so frequent as they are supposed to be, and from my own experience I would say that chancres are much more common. Injections for gonorrhœa are said to be of three kinds—the sedative, the emollient, and the stimulant; what is meant by a sedative injection, as applied to the urethra, I do not know, nor do I believe there is such a thing; the mild or emollient injection I consider perfectly nugatory,—the stimulant ones are those only which can do service, but they must be given early; astringent injections will do no harm. Now, why do injections fail so often in curing clap? Among others, there is this reason—that not one man in fifty use them properly; a man thinks he is throwing in half an ounce of fluid into the urethra, but not a drop of it may go beyond the point of the syringe, and of course does not reach the seat of the disease, which is from half an inch to an inch up from the orifice; let him, therefore, introduce the point of the syringe far up into the urethra, let him then inject the fluid slowly, and not withdraw the syringe for some little time; you should see him inject the first time before you, to be certain he does it properly. It is a common advice to patients not to let the injection go down so far as to irritate the testicles, and they therefore grasp the penis in front of the scrotum to prevent the injection going any farther—now, this is perfectly unnecessary—for without great force, the injection will never pass beyond where the urethra is embraced by its muscles. Some people are very fond of giving mercury in one form or other

in injections for gonorrhœa, — but mercurials are really of no use whatever, except simply as stimulants, nor of use internally, except for the ordinary purposes for which it is exhibited in any case. In beginning your treatment for this disease, you should not neglect to enjoin rest and temperance to your patient, for both will conduce much to a speedy cure, and to the prevention of consequences much more troublesome and tedious than the original complaint; you should, therefore, tell your patient to lie on a sofa all day, and carefully to avoid any excess in eating or drinking. Some will not restrict themselves in this way for you, but in that case you are not responsible for any consequences that may follow.

There are constitutions that will not bear the strict antiphlogistic treatment in this, as in other inflammatory diseases — you will see some, suffering very great pain for ten or twelve days, and all that time rigidly abstaining from animal food, wine, &c., and scarcely venturing to walk across the room, with perhaps a considerable discharge from the urethra — but of a thin unhealthy kind; — now, this man will be at once relieved by generous diet, and perhaps the night after he first ventured on the change of treatment he will get a good night's rest, which he had not enjoyed for several nights before, and next day the quality of the discharge will be quite altered for the better, and he will rapidly get well. As to the quantity of injection to be used each time, and the number of times it is thrown up in the day, I think that in ordinary cases twice the full of the syringe, two or three times a day, will be sufficient to inject. I do not think purging necessary, but keep the bowels gently open, and the patient on rather low diet; — when the disease is at its height injections are likely to do mischief — they might bring on swelled testicle, or that irritable state of the bladder which sometimes attends gonorrhœa.

A patient who had been going on well, and the discharge almost entirely stopped, may think there is no more occasion for your advice, or to give himself any more trouble or restraint on account of his complaint; he may therefore neglect to use his injection for ten days, and the consequence is that all the symptoms return with their first violence — they have become just as they were at first — scalding and everything — in this case, although the symptoms are high, astringent injections will be of the greatest service. In like manner when the disease has gone on for three weeks without the patient having done anything for it, or used any injection, you may order him astringent ones at once. The chordee is often kept up by other causes than the clap; it often owes its continuance to stricture; there is a very simple mode of relieving this painful affection — it is this — direct your patient to get up, if he is in bed when it seizes him, and to put himself in a position resting on his elbows and knees, and when he does this, the chordee immediately stops.

Sometimes when a patient gets up in the morning and goes to make water, there comes away a considerable quantity of blood, and this perhaps recurs in three or four hours after, — but though this

alarms the patient very much, there is no danger whatever in it; indeed, the patient feels a great deal the better for it. This circumstance has been looked on with much alarm by some surgeons on another account than the mere loss of blood, for they consider there must be an abrasion of the surface of some part of the urethra, and that an absorption of the gonorrhœal matter would readily take place there, and that to counteract this, mercury should be exhibited. I do not at all think so, nor do I think mercury, in salivating doses, necessary in any form of gonorrhœa. The testicle sometimes becomes morbidly sensible during the progress of this disease — the patient cannot bear them to be touched in the slightest manner — not even by his clothes; now, if this sensibility be in *both* testicles you need have no fear of hernia humoralis, for the affection is purely sympathetic, and will go off as the clap subsides; — but if the uneasiness is described as going along the cord, and so to the epidermis and testicle, and if the affection be in but *one* of the testicles, you may have reason to fear hernia humoralis.

There has been a great deal of earnest and useless discussion as to the way in which gonorrhœa causes swelling of the testicle; some are advocates for the opinion that the virus gets from the urethra into the vas deferens, and then creeps on until it gets to the testicle, and causes a specific inflammation of it; but if this were the case we could see no good reason why both the testicles should not, sometimes at least, be seized with this inflammation at the same time; but we never see this take place. Others, again, call the occurrence a metastasis — but the same objection would apply to this theory as forcibly as to the last — the truth is, this gonorrhœal swelled testicle owes its occurrence more to constitutional than local causes — and this opinion is borne out by these facts — the fever *precedes* the pain and swelling of the testicle, and an emetic, taken at the very commencement, cuts the matter short at once; if the patient takes improper food or drink, the swelling and other symptoms quickly return; moreover, the swelled testicle very seldom comes on at the worst stage of the disease, but when it appears to be getting well; the discharge generally dries up when the testicle begins to swell, and on the subsidence of the swelling the running from the urethra returns, — never, however, in the same quantity it was at first. This swelling of the testicle may go down in a few days, but the patient often has little cause to rejoice at this, for then the other may become inflamed, and run exactly the same course as the first had done, and when by judicious treatment this new attack was subdued, the first again becomes bad, and so they will alternate two or three times; after the inflammation and general swelling have finally ceased in the testicle, there remains a little knot, the size of a pea, in the epidermis; and some, having heard something about the testicle being composed of a tube, imagine that this knot must plug up the tube, and of course this testicle must ever afterwards be useless: but this is not the case, for persons who have had hernia humoralis in both testicles, so far from being im-

tent, have, to my knowledge, been very prolific. The treatment for this affection consists, in the first instance, of an emetic, leeches and fomentations to the part, gentle laxative medicines, and supporting the testicle in a suspensory bandage—but the affection is sometimes very troublesome. As the running from the urethra generally dries up, when the testicle swells, and returns as the gland gets well, it has been recommended for the cure of the hernia humoralis to endeavour to bring back the discharge from the passage, by the introduction of a bougie smeared with some stimulating ointment; these applications will, no doubt, bring on a running, but it is not the gonorrhœal running—which you never can bring on by these means, and I do believe you never do service to the inflamed testicles by their employment.

Sometimes, instead of swelled testicle, gonorrhœa produces another distressing affection;—the patient gets frequent desire to pass water; he will go to the chamber-pot every thirty, fifteen, ten, five, and even at last every two minutes—and at last retention of urine comes on, and the patient suffers a great deal of pain and distress, from the urgent feel he has to make water, his sufferings being chiefly in his efforts to evacuate his bladder, without being able to accomplish anything. When you come to a case of this kind you begin your treatment by warm stuping, or a hip-bath—you direct an anodyne enema to be thrown up, and wait a short time to see the effects. Should the retention not give way after a moderate delay, according to the urgency of the case, what next are you to do? Why, some have an unaccountable dread of instruments in such a case; no man of course would wish to introduce a catheter to draw off the water if he could remove it by any other means, especially with the urethra in such an irritable state: but you are cautioned in a case of this kind not to attempt the introduction of a catheter; now, I tell you that if other means fail of giving speedy relief, that you *must* introduce a catheter to draw off the urine, or this will probably be the consequence, that you may, by delaying its use, ever after prevent your patient having the power of making water without one. But there is still another question raised on the practice in this case; namely, whether a full sized, or the very smallest sized catheter should be employed here: every practical surgeon will admit that where there is no obstruction in the urethra, a large instrument is more easily introduced into the bladder, and gives much less uneasiness to the patient, than a small one does, and on this account I prefer a large silver catheter to any other here. There is no particular difficulty or danger in introducing a catheter for retention of urine arising from inflamed bladder, no more than for retention from any other cause, but perhaps greater necessity for avoiding any unnecessary pain or irritation in the operation for this than in most other cases; I always use a large instrument. A few days ago an officer of high rank came to me, accompanied by the army surgeon; he was walking about the room in great agitation, and going to the chamber-pot every ten minutes or oftener, and at

each time passed a little water ; I introduced the largest sized silver catheter I had, without difficulty or producing pain, and he was quickly relieved of his complaints ; in fact, you will meet with a great variety of strange sensations and symptoms in this disease.

I said that before the coming on of a hernia humoralis, the gonorrhœa had in appearance got almost well ; that is, the discharge had nearly or altogether ceased, and that as the inflammation of the testicle subsided, the running from the urethra began to return, and that from the observation of this fact arose a line of practice for the cure of the testicle ; namely, the stimulating the lining membrane of the urethra to bring back the suppuration ; but those who have proposed this plan took, in my opinion, a very superficial view of the affair ; when speaking of inflammation I brought to your recollection what you must often have observed, that on the coming on of the common inflammatory fever, all the secretions, both natural and morbid, were diminished or suspended, and the suppurative process will therefore be suspended wherever it might happen to have been going on, and thus it is that the fever that precedes the swelling of the testicle in gonorrhœa checks the discharge, and one might with as much reason try to cure any local inflammation by stimulating the surface of a neighbouring sore to bring back its discharge, which the fever of the inflammation had dried up. The discharge which returns spontaneously from the urethra on the subsidence of the swelling of hernia humoralis, is gonorrhœal matter, but that which is induced by stimulants introduced by the surgeon, is very probably not capable of communicating the disease to another.

The epididymis is the first part of the testicle affected — it is at first soft and tender to the touch, but very soon grows swollen, hard, and very painful ; this part is also the last to get well, and a swelling, sometimes as large as a filbert, will remain for a long time, even years, or for the patient's whole life ; but it has no influence on the functions of the gland. After the pain and swelling of the testicle are gone, a worse mishap may follow ; — day after day the size of the gland may be less and less, the patient at first congratulates himself, but, after a little, he grows uneasy when he finds it is not merely the swelling, but the organ itself that is going ; — he consults the surgeon, who perhaps tries mercury, or tonics, or stimulants, sea-bathing, &c., or perhaps advises the natural functions of the testicle to be excited by their proper stimulus, and after all has the mortification (not a little participated in by his patient), to find everything unavailing, as a remedy, or even as a prophylactic, for very soon the second testicle may follow the same course, and the man remain emasculated for life. Another consequence of hernia humoralis is sometimes the formation of small abscesses about the epididymis or chord, or the body of the testicle itself may suppurate, but this is a rare occurrence. That disease called lipoma has also followed the swelling from gonorrhœa. I mentioned that gout has sometimes been the cause of symptoms resembling clap, and I should have also stated, that with or without the purulent discharge from the urethra,

that disease may also produce an inflammation and enlargement of the testicle ; and the symptoms coming together might make one not acquainted with the fact quite sure that the disease was gonorrhœa. I am disposed to think that unhealthy changes in the secretions of the vagina or labia in a woman, who was never exposed to venereal infection of any kind, may cause symptoms closely resembling gonorrhœa in a man with whom she has sexual connection, although he should have no previous disease of the urinary organs, or any particular tendency to such. Gonorrhœa sometimes causes very unpleasant and even serious complications in those whose prepuce is naturally long and the orifice very narrow ; as the matter gets between it and the glans, and cannot readily escape, it collects and produces extensive excoriations or ulcerations of both surfaces, or an inflammatory phymosis may occur in severe cases, but of this last affection I shall have occasion to speak again. In injecting between the prepuce and glans, you should direct the patient to press the orifice of the prepuce round the pipe of the syringe, so that none of the fluid may escape before the prepuce is well distended, as otherwise it may not get at every part, and so some of the irritating matter be left behind. Writers mention constitutional or secondary diseases as liable to follow the reception of the gonorrhœal virus into the system, such as pains in the bones, eruptions, sore throat, &c., and that they, or some of them, have peculiar characters that indicate the nature of the primary disease ; — all I shall say on the subject is, that when these symptoms arise, whatever may be their cause, except syphilis, they do not require salivation for their cure.

Gleet, proceeding really from clap, is a rare occurrence, it more frequently proceeds from an urinary disease ; when it is the result of clap you must use a very stimulating injection, and the best, perhaps, is a grain of corrosive sublimate dissolved in two ounces of water ; but you should be careful how the apothecary makes it up, — that it is properly dissolved and mixed ; after this is injected there come on symptoms resembling a violent gonorrhœa, you then wait a few days, after which order astringent injections, and you will generally succeed in removing the gleet ; should this treatment fail, however, you must send the patient to the sea-side, and let him take muriated tincture of iron two or three times a day. A painful indurated swelling of the glands of the groin, called bubo, sometimes takes place in gonorrhœa ; it often alarms the patient and surgeon, who imagines that it must proceed from the absorption of the matter from an ulcer in the urethra : but they do not really indicate any such thing, they are merely sympathetic, and arise from irritation alone ; there is no occasion whatever to exhibit mercury to cure it : if it is troublesome, just treat it as you would any glandular inflammation ; they very rarely proceed to suppuration, no more than buboes arising from any other source or kind of irritation ; unlike that from chancre, it is moveable, does not involve contiguous glands, and can be cured by ordinary antiphlogistic means. The patient should be enjoined perfect rest in the recumbent posture ; the part should be fomented

with decoction of chamomile or poppy-heads ; gentle laxatives, and an anodyne if necessary, are all that may be required. Whether the patient is obliged to be much on his legs or not, during the treatment for gonorrhœa, it will be advisable to have the testicles supported in a suspensory bandage, and you should see that it does no more than suspend them, and not make any pressure on them beyond this.

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## LECTURE XLI.

The venereal disease (*continued*).—Syphilis—Chancre—Non-mercurial treatment  
—Venereal hectic—Forms of giving mercury.

WE shall now proceed to consider *syphilis*. There is in all the writers on the venereal disease who preceded Hunter, a great want of arrangement of their subject ; some begin with bubo — others from chancre go to sore throat, &c., and this seems to be mainly owing to a want of knowledge of the absorbent system : through the correct views of Hunter in this important branch of medical knowledge, he was enabled to make the first scientific arrangement of the venereal disease, and if he never wrote anything but his treatise on it, he would be entitled to the lasting gratitude of mankind. Doubts have been started on every possible feature and circumstance of this disease, and these doubts have gone on increasing, step by step, until the question has come to be seriously asked — “ Is there such a thing as the venereal disease at all ? ” I heard it declared by a professor of great eminence, that there really was no such thing as a specific disease arising from venereal causes. It is not a very difficult thing for men who take their own imaginings for substantial facts, and give themselves up more to abstractions than to observation, whose ambition is to put others in the wrong that they themselves may be considered supereminently right, it is not difficult for such men to raise objections, and they often do, until no one knows what the real question under discussion is ; in the present case a little common sense would suggest that here is a disease, call it what you will, that presents a permanency of character — that if it be not cured, certain well-known consequences will follow at some distant period — that this secondary class of maladies exhibits great uniformity in the situations and structures in which they show themselves, — that they require the same treatment, with, of course, allowances for varieties in constitution, which modify every disease — yet with all this it has been doubted that it is any disease in particular. Hunter himself, who rarely ventured a step in argument beyond what he thought could be supported by the testimony of common facts or ingenious experiments — even he unfortunately began to reason too soon on the venereal disease. No man knew better than he did the differences that constitution and previous treatment made in venereal

ulcers, and yet in his definition of primary venereal sore, or chancre, he admits no variation whatever in its characters. No man knew better than him what changes climate and constitution makes in all diseases; we see this every day in hospital and private practice, and we have a useful opportunity of contrasting the differences in the circumstances of both. The habits of the lower orders produce great varieties in their venereal complaints; those tradesmen whose business subjects them to alternate changes of heat and cold, and wet, such as the men who attend to steam engines, glass-blowers, hatters, and such like, drink a great deal of ardent spirits and malt to support their strength, and when they apply for relief for venereal complaints, you would think there was no end to the forms of sores with this origin. In those moist and warm seasons when the hospitals are full of erysipelas, when it has become a kind of epidemic, and seizes on wounds and ulcers that would at other times give no trouble, venereal complaints are not exempted from the general catastrophe of the time; that is the period you see so many cases of inflammatory phymosis, spreading ulcers, intractable buboes, &c. Well, in the face of every fact observable in ulcers in general, Hunter lays down a definition of chancre, which is to be considered as final and conclusive. He says, chancres have always a peculiar hardness at their base, but if we adhered strictly to his definition, very few cases of primary venereal sores would be seen, I suspect; out of five cases that are presented to you, you will not find more than one true Hunterian chancre, and yet there is no doubt but that many ulcers, not of this description, have proved themselves venereal.

In the early part of my life I thought I could tell what was a chancre; that I could pronounce, on examination of a sore, whether it was venereal or not, but I am now convinced that a primary venereal ulcer may *begin* in any one possible form of an ulcer. I consider a chancre to be simply a sore that yields very slowly to common local treatment, which mercury will cause to heal, and which, if not cured, will be followed in two or three months by known secondary affections in other situations, which will also be cured by the exhibition of mercury. Sometimes a man comes to you, and all you see is a penis covered with excoriations; these you set about healing by lotions and other local means, and you succeed except in one spot, and that spot will not heal except you apply some violent stimulus to it, as lunar caustic, but will assume what are considered the regular characters of a venereal ulcer. When you see it first you examine every bit of it, and are unable to detect a particle of induration throughout the whole excoriated surface, yet whether it heals by itself, or with your assistance, there the one or two chancres, with their hardened edge and base remain, and you must exhibit mercury for them, or expect the usual course, both local and constitutional, to follow, as would any other primary venereal sore, whatever shape it may have first put on. Sometimes the ulcer which is raised in the centre is not venereal, but sometimes it is. Another form in which it is often seen is this: a man gets a small fissure on the edge of the

prepuce — it is not very painful, and is indolent in its progress, remaining five or six weeks stationary — still he goes on in his old habits, having impure connections — at last it inflames, and afterwards turns out to be venereal; this fissure is longitudinal in its direction, and after it has existed a little time its edges become hard. Hunter thought that the hardness of his chancre showed that it had no disposition to heal. I do not think that hardness is at all essential to the character of a venereal ulcer. Sometimes there appear a number of ulcers on the edge of the prepuce, without any hardness, and prone to heal of themselves; these are not venereal. Take a sore on the genitals, produced by any local irritation, without the least hardness or concavity, and let a meddling person rub that sore with caustic two or three times, and he will be likely to convert it into a fair specimen of Hunterian chancre, as far as sensible characters go, or he may heal it. Well, then, it may be asked — “If we have no appearances in an ulcer that will tell a venereal origin with certainty, how are we to pronounce on a case, or to treat it with the necessary promptitude?” To this I should answer, you need not be in any very great hurry to administer your remedies, even if the sore be venereal, for a chancre is an ulcer that is very slow in its progress, and a week or fortnight, sooner or later, can make but little difference in the disease, or its cure; therefore, if you should have any reason to doubt that a sore is really venereal, just try to heal it by ordinary means, and if you fail, where there would be every rational expectation that you would have succeeded, were the case a simple one, then consider it as venereal, and act on the presumption accordingly.

Can a venereal ulcer be healed without mercury? I once asked Mr. Pearson, when he was in full practice in these cases, if he ever knew a chancre to heal *of itself* — his answer was, “*I think I did,*” so that you may conceive how unusual such an occurrence must be, if it takes place at all. I am, however, disposed to think venereal ulcers may *be brought to heal* without mercury. When an ulcer comes on the penis, it is totally impossible to tell what that sore may turn out to be; just dress the doubtful sore with lint, and if with this it heals in eight or ten days, you may be sure it is not venereal — there is no criterion for many of these but time and watching; do not use stimulating dressings in the experiment, for they would alter the characters of the ulcer, and render you less certain. You are told that a chancre will heal without mercury, and that in such a case, should secondary symptoms afterwards come on, they will be milder in their character than if mercury had been used; but supposing all this, for argument sake, what advantage does your patient derive from the fact? You will take five or six weeks to heal a sore in this way — for that is the average time of the cases given us of chancres being healed without mercury; and, moreover, you are directed to keep the patient quiet and at home during all that time — a thing which I can tell you, you will get very few patients to submit to: you will find many who would rather be put under the worst course of mercury, or even

be poisoned, than submit to such restrictions. But after all, how is that patient cured? Why, the soldiers in hospital, who have been submitted to this treatment, have walked out of the wards white-washed; with constitutions broken down, pale, emaciated and feeble — in every respect infinitely worse than the same class of men who have been cured by mercury.

A man who has had his chancre cured without mercury has sometimes a hard nob or tumour remaining where the original chancre had been, sometimes as large as a filbert, of a bluish colour, and without any pain; it gives him no trouble, but there it remains; now, in such a man you will find, that from the moment the chancre is healed, his health begins rapidly to decline — he falls into a hectic state — he sweats profusely every night — his flesh and strength rapidly fall away — he gets a purging, has a continued thirst, &c. Such a case came across me in a state so far advanced in hectic that I thought he was beyond all aid; I decided at once that the man was labouring under syphilis — I gave him mercury, and in eight or ten days he was at least safe, and finally recovered perfectly under the mercurial treatment. Now these are cases where, on general principles, one would be afraid to think of mercury; the patient would be probably sent to the country, or to the sea-side, if in mild weather, and directions given solely with the view of recruiting the health sufficiently for further proceedings; there are many cases of hectic under which the patient would sink with frightful rapidity if a course of mercury was undergone with him, and therefore the greatest care must be had in discriminating the venereal hectic from others; besides the history of the case, and the impossibility, perhaps, of discovering any other source for the state into which the man has fallen, you will almost always be able, on close investigation, to discover some secondary symptom present, — such as an eruption, which will explain everything. You will not succeed in relieving those cases by trifling; you must give mercury at once, although cautiously, and in small doses. I have seen some more of these cases, and some closely resembling them, which followed an imperfect cure by mercury, carelessly or injudiciously exhibited; these cases are, however, rarely met with. Another man gets his chancre healed without mercury, and (as soldiers have been the subjects of these trials) he is thought to be only evading his duty when he complains to the surgeon, and as a military surgeon informed me, he gets into a state of constitution that confounds all previous knowledge of disease. Strong prejudices will doubtless prevent many having recourse to mercury under circumstances which they have always been taught to regard as peculiarly inimical to its sanatory action.

In some of these cases we shall have a man with both primary and secondary symptoms existing at the same time — with febrile action going on either of the inflammatory or typhoid type, of the irritative or hectic kind — with all the animal powers reduced to the lowest ebb — and perhaps an eruption coming out at the same time on his skin, to which a due share of the fever may be attributed, but alto-

gether in a most anomalous and deplorable condition—to venture on mercury in such a case can be only from the experience that nothing else seems to produce much effect, and after the first trial, from seeing its success. In such cases as these I should recommend you to begin with ten or twelve grains of the ungu. hydrarg., to be rubbed in on the thighs every night, or three or four grains of blue pill. It may be necessary, occasionally, to combine the use of bark with it when the system is in a state of great depression; it will be found to assist its action considerably. I have never ventured on larger doses of the blue pill or mercurial ointment than those I have mentioned to you; indeed I suspect that a more free use of the mineral in the first instance in such cases would be anything but prudent—that it would be very likely to do mischief instead of good, for you will find that one-fourth of the quantity of mercury given in ordinary cases to bring the system fairly under its influence, will be often even more than sufficient in these.

Hunter tells you to heal a chancre as quickly as you can by local means, in order to prevent, as much as possible, the danger of absorption. Mr. Dease, the elder, used to mention, that in order to learn how soon absorption of a specific matter could take place, he inoculated a person with the small-pox, and on the second day after he rubbed the part he had inoculated with lapis infernalis, yet the child got the disease; in another instance he did the same when the pustule had formed, and the child, as in the former instance, got the disease. I think from this and other observations, that the moment the pimple of chancre is formed, the patient is in as much danger as at any future period, and therefore it is useless to take any pains to heal the chancre by local means; but I would not attempt to heal the chancre with local applications for other reasons—the *sore* can do no harm, it gives little inconvenience, and it is really the best index of the effect your treatment has on the disease; therefore my advice is not to meddle with it, except to have it washed with cold water, and then to have a little dry lint laid on it.

There are, as you know, several preparations of mercury, and modes of impregnating the constitution with the mineral. Are they all equally proper for the treatment of a primary venereal affection? They are not by any means, in my opinion. In what way, then, are we to exhibit mercury? I think frictions with mercurial ointment the best method, but if the patient will not stay at home, I would not think it the safest. It will be of advantage to have the quantity of ointment to be used at one rubbing divided into three or four portions, and to see that each is well rubbed in, before another is used, and you should make your patient if possible to get some one to perform the frictions for him; for besides that it would be more convenient in another person to do it effectually, it would require more exertion than the patient himself could, or ought to exert; I have seen young men to the last degree exhausted after rubbing in a drachm of mercurial ointment before a hot fire. When the patient is equal to the exertion, however, he would gain this advantage in doing it

himself, that his hands would absorb a portion of the ointment during the operation. If another is to do it, he should have his hands covered with a piece of bladder, or some such thing. In administering blue pill or calomel by the mouth for chancre, we are liable to have our intentions thwarted by the medicine acting on the bowels much more than on the gums, and to avoid this it is advised to combine opium with it, and certainly this may be sometimes absolutely necessary; but I would not be in a hurry to order the addition of the opium for this reason, that in two or three days the action on the bowels will cease of itself and not return, except some change is made in the preparation prescribed — as from blue pill to calomel, or *vice versâ*, or increasing the quantity to be taken at a time.\*

But you must not confound this mercurial diarrhœa for a more serious impression made by the medicine on the alimentary canal — namely, dysentery; in this case there will be the ordinary symptoms of fever at the commencement, griping, tenesmus, frequent desire to go to stool, and passing each time but a little mucous or slimy matter, sometimes mixed with blood, and suffering much pain in the evacuation. Should these symptoms come on, you must suspend the mercury for a while, and treat your patient as for ordinary dysentery. Calomel is generally quicker in effecting salivation than the other preparations, but it is more liable to act on the alimentary canal if it be not combined with opium; I usually try it first without, and very often, indeed, generally succeed in obtaining its proper mercurial action after a few days. As to corrosive sublimate, which forms the base of numberless nostrums for the venereal disease, it is a preparation that can never be trusted for a radical cure; it will, it is true, cause some of the secondary forms, as some eruptions, to disappear as quickly as any other, or even more quickly, but there its service ends, for if not followed by some of the more trustworthy preparations, the appearances, if removed, will certainly return sooner or later.†

At what time should we expect the action of mercury to become apparent in the gums and salivary glands? The question of time can obtain no certain answer, for various circumstances will influence this action. You should expect, under favourable circumstances, the mercury to show itself in the system in a week or ten days, but even where things are going on favourably enough, you will find great variety in this respect. If, at the end of a fortnight, you observe no signs of the patient becoming salivated, you had better

\* I have had on more than one occasion to order a gentleman mercury so as to salivate him, and always found the addition of opium to *cause* purging, while the blue pill alone had a tendency rather to confine his bowels. This, although unusual, is worth remembering.—*Ed. of Lect.*

† The late Dr. Percival used to prescribe the following as an imitation of Velno's Vegetable Syrup:—

℞ Muriatis hydrargyri corrosivi grana duo,  
 ——— ammoniæ grana decem, tere simul et paulatim adde.  
 Aquæ rosarum unciam, dein adjuce semper terendo  
 Syrupi sacchari rubri (treacle)  
 Mucil. gummi arab. spissati utriusque uncias tres cum semisse.  
 Sumat cochleare apulum meridie et hora somni.—*Ed. of Lect.*

stop the mercury for two or three days, purge him, let him have a couple of warm baths, and immediately after the mouth may become sore, even before you have put him on mercury again. In some cases, as where you want to save a man's eye affected with venereal iritis, you must throw in mercury rapidly; no matter whether you may dread a very severe pyalism to follow or not; it is only by a quick and strong mercurial impression that you can hope to benefit a case of this kind.

## LECTURE XLII.

The venereal disease (*continued*).—Mode of exhibiting mercury and its effects—  
Eczema mercuriale—Mercurial erythismus.

I wish particularly to impress on you this — that if, after a rational length of time, or a course protracted beyond all reason, you still find either a very inadequate effect on the gums and salivary glands, or none at all, you must not think to produce a better effect by increasing the doses, or what is the same thing, diminishing the intervals between each, but look to the constitution, and you will be able to take a safer course to attain your object; your doses, although moderate and proper in ordinary cases, may be too much in one particular instance, and this will be indicated by its exciting a high degree of fever with a *dry* mouth; now, if you increase the dose here, or continue the mercury at all, until you have reduced the fever, you may do the greatest mischief to the constitution, and no good whatever to the disease you wished to cure. You will, perhaps, find one man out of fifty whom nothing in the shape of mercury will salivate at all; I must admit I have cured some of these individuals of their venereal affections notwithstanding this idiosyncrasy. Much of our success in the treatment of the venereal disease depends on the manner we employ mercury; unless you are previously acquainted with the constitution of your patient, you should begin with half a drachm of ung. hydrarg. fort. each night, and after the third night you might increase it to a drachm, to be rubbed in on the inside of the thighs;\* if your patient cannot or will not submit

\* It is now, I believe, nearly thirty years since Mr. Donovan, the chemist of this city, made experiments on mercurial ointment, with the view of ascertaining the state in which the metal existed in that preparation; the results are known to every one. I recollect some patients in the Westmoreland Lock Hospital who were submitted to the trial of an ointment, prepared by the direct union of the protoxide of mercury, with lard, &c.; eight or ten grains of this ointment were considered equivalent to forty of the common one of the Pharmacopœia — it was rubbed in for about ten minutes or less, and appeared to act speedily and safely; in one or two instances it brought out a slight eruption on the thighs, but in general it produced no such effect. Considering these experiments, and others with the same tendency and results elsewhere, it is strange that the imperfect and uncertain unguentum hydrargyri Phar. Dub. should be still retained. — *Ed. of Lect.*

to confinement, your better plan will be to give him at first five grains of blue pill night and morning, and increase the quantity as circumstances will permit. Now, a very material question is—How far are we to carry the use of mercury, and how are we to know that what we are giving is acting properly on the constitution and on the disease? If it acts favourably, the appearance of the chancre at the end of a week at farthest will be evidently improved.

When a chancre does begin to heal its progress is usually rapid, when nothing untoward occurs; but from what I have said of unfavourable changes that now and then result from the wrong action of mercury, you might be led into apprehensions where there were no grounds for them. The first beneficial effect of mercury on these sores is not marked by the contraction or lessening of the ulcerated surface, but rather the contrary; it looks a little larger for a day or two, but you will observe its cavity filling up from the bottom; it is becoming more a superficial ulcer, and after this is effected it begins to contract at its edges and to heal. You must not, therefore, mind the appearance I have described, unless it continues to enlarge beyond a trifling extent in the first instance, or unless it becomes painful, or the parts about it get red and inflamed. If everything is going on right, besides the filling up of the ulcer, its unhealthy colour will give place to an appearance indicative of its first step to the healing process, and the hardness about the part will have obviously diminished; but the hardness may not be quite gone even when the sore is entirely healed, and when that is the case the mercury ought to be continued until none of this morbid hardness remains, and even for a week or fortnight after.

There is nothing more important to remark than the condition of the gums under the use of mercury, and the degree of salivation produced. The gums may swell and ulcerate, and yet the mercury is disagreeing with the constitution, and doing no service to the disease; if the gums swell, remaining red, however, and a salivation comes on, all is right; but if it causes *ulceration* of the gums—if the gums are receding from the teeth, and *that there is no discharge of saliva*, mercury is doing no good, but mischief; if you continue its use without this effect being produced, you must do one of two things—either double the dose of the mercury, and by so doing, when you least expect it, throw your patient suddenly into a profuse salivation, which you will not, perhaps, be able to control; or you must retrace your steps, and alter the constitution by attending to the bowels, or doing whatever else seems to be indicated in the individual case, and when this is done a proper salivation will often be the consequence without another particle of medicine being given; but should salivation not come on after purging or bleeding, or a warm bath or two, you can resume the mercury, and you will then easily bring on the salivation. Formerly the quantity spat in a day was the criterion by which the amount of benefit obtained was judged, and nothing was more common than to ask in the hospital—“How much have you spit?” But now we know that if we

produce a slight salivation it is enough, suppose half a pint of saliva in the day. Now, mercury from peculiarities in the constitutions of individuals, or some other cause, cannot, as I have said, be made to affect the gums at all, and in some of these cases it will affect the throat instead; about the usual period that the mercury should be expected to show itself, the patient will experience some uneasy feeling in the throat, and on your examining it, the soft palate will be found thickened and red, and an ash-coloured slough on one or both of the tonsils; this would rapidly spread if the mercury were rashly pushed without care and attention to the constitution. Although this is a local demonstration of the action of the mercury, it is not one on which I should wish to place much reliance as a curative for the venereal disease; you must sometimes, however, be content with it, as no other can be had, and I must admit I have cured the primary disease without other local effect of mercury.

As long as any hardness remains in the chancre the mercury should be given — the hardness may, as I have said, remain after the sore is entirely healed, but still your patient should go on with the mercury until it is entirely removed; do not forget, however, that there may be hardness without anything venereal in it, arising, for instance, from position — thus, if the chancre had been on the fold of the skin, as on the edge of the prepuce, or at the corona glandis, the mercury might be suspended before all the hardness had quite disappeared. But supposing you had been treating a chancre which, in the beginning, had all the signs of a true venereal sore, and that after some time a fair quantity of mercury had been consumed in the cure, and that a proper degree of ptyalism had been induced and maintained, and that you were still further satisfied in seeing the hardness completely gone, and nothing left but a simple healthy-looking granulating ulcer, perhaps just healed, would these circumstances be sufficient to pronounce that man cured — that he might leave off the use of mercury, and be no longer capable of communicating the venereal disease to another? It would not — at least I saw two cases where it was not. A young gentleman had contracted the disease in England, and had in the meantime concluded his arrangements to contract matrimony; he came over here for the double purpose of arranging some affairs and of getting cured, which could not be so conveniently done where he was; he put himself under my care, and everything went on prosperously until the sore was in the state I have mentioned, and he began to be proportionably anxious to return. Knowing he was to be married when he got back to England, I was very desirous he should remain here at least a fortnight longer, and explained to him the risk of prematurely giving up a course which might possibly be necessary for a certain cure — but no — he would not remain, and in about two months afterwards I had a letter stating that my fears had not been groundless, and that he wished he had taken my advice, as he had unfortunately communicated the disease to the lady he had married.

There are some circumstances independently of the local disease,

that must influence you in your use of mercury ; — sometimes a number of pimples come out on the thighs which will oblige you to break new ground for the frictions — I do not know how to cure these, except, perhaps, to rub on a little spermaceti ointment on them, and often in a few days the part will be again able to bear the friction of the mercurial ointment. To cure a chancre it does not matter where you rub in, whether on the legs, or arms, or any other place ; the thighs were, perhaps, originally chosen for inunction, under the supposition that being nearest the diseased part it would the sooner take effect on it — but this is not the case — the mercury can only act on the disease by its effects on the system, and if we have sufficient evidence that it is acting on that in a sanatory manner, it is all we need care about.

*Eczema Mercuriale.* — From some peculiarity of the constitution, we occasionally find it very difficult to continue a course of mercury to the extent, or in the way we would wish ; sometimes the exhibition of mercury excites what has been called *mercurial erythema* or *eczema* — the first symptoms of which should receive great attention from you. The commencement or progress of this disease is not marked by any perceptible fever, unless it happens to assume a very severe form. The patient complains to you of an itchiness about the groins and pubis — you examine, and find the parts red, and with a roughness to the fingers as if there were grains of sand over the part : — if you continue the mercury, the itching, redness, &c., spread, and at last every part of the whole surface of the body comes to be covered with it, it will become raw, and many have lost their lives from not being able to hold out against the irritation it causes. The itching always begins in the groins — I never knew an instance where it began anywhere else ; it will be necessary to ask the patient on the subject, particularly if we have any reason to suspect that he is disposed to this disease, as many patients do not mind the beginning of the affection, but will bear up against it for a good while without mentioning it. There is one curious circumstance in the coming on of this eruption — it begins very early in the course, when the gums become perhaps slightly affected, or when the patient begins to feel a coppery taste in his mouth, but I never knew it to make its first appearance after salivation was fully established. This erythema proceeds from constitutional causes, and does not in the least depend on the *quantity* of the mercury used ; I have seen it come on with one rubbing, while others go through a long course without experiencing it ; it is entirely owing to peculiarity of habit. I visited a young man once, and on examining him I told him he had got the venereal disease, on hearing which he immediately fainted ; I thought this strange — for I could not understand what there was in telling a young fellow that he was poxed, to make him faint — but I afterwards found there were very good reasons for it, for he had caught the disease twice before, and at each time he was brought to death's door by the mercurial erythema ; well, I was determined to proceed very cautiously, and therefore began by ordering *ten grains*

of mercurial ointment to be rubbed in at night — this was accordingly done, and the next morning he got the erythema; when it went off I changed my plan, and gave him half a grain of calomel, and again the disease came on — I was now very much puzzled what to do, but I told him to throw off as much of his clothes as he could spare, to keep the room very cool, and then I began with very small doses; these he bore for two or three days, and on the coming on of the erythema we stopped a little, and then began again, and thus by degrees we contrived to steal in as much mercury as cured him. This success gave him courage, and he again got disordered; and on commencing the use of mercury the same thing recurred, but with the former precautions we were enabled to again effect a cure. Sometimes the erythema will go on to such an extent that the patient will be actually sticking to the sheets. I do not know how to treat a patient of this kind; you may read the books written on the subject, but when you come to practise you will find they were no wiser than yourself.

In the milder forms of erythema the patient sometimes experiences relief from having the parts dusted with flour or finely levigated starch; sometimes by bathing with water, or black wash. When this eruption comes out you will generally have the consolation to give your patient, that his venereal symptoms are much more improved than could have been expected from the ordinary action of the mercury, in the quantity taken by him on that occasion.

*Mercurial Erythismus.* — There is another very peculiar and dreadful affection caused by the use of mercury, named the mercurial erythismus, of which so excellent a description has been given by Pearson, and which you must read; — the palpitation of the heart in this disease is unlike the palpitation from any other cause — I do not know how to describe it; — I have known this disease to carry off the strongest looking persons — there is nothing in the countenance or appearance of the patient that will indicate the approach of this disease; I saw two soldiers in the hospital who died of it — one of them was in the act of walking from his bed to the fire-place to rub in, and down he dropped dead; another was near the fire, and got up, saying he was going to take a drink, and when he had got from the fire-place to his bed, and taken a drink of water, he fell down dead. There is nothing, I believe, that can be done for this terrible disease, when you have any warning of its presence or approach, but to have the patient, bed and all, taken out into the open air. I need hardly say that you must suspend the use of the mercury, and even for some time after immediate danger is passed — perhaps for a month or more, and when you are obliged to resume its use, to do so with the greatest caution. Like erythema, I never saw an attack of this dreadful disorder come on while the patient was fully and fairly salivated.

There is another affection which I have seen arising from the use of mercury, and which, although by no means of so serious a nature as either of the preceding, is productive of excessive distress to the

patient; it has some resemblance to the *stripping* or excoriations seen above the folds of the groins or buttocks of infants which are not well attended to, — the excoriations in the opposed surfaces of the labia pudendi of females subject to leucorrhœa, and in other cases, but is much more severe than any of them; — it is an excoriation about the scrotum, groins, or other places where two cutaneous surfaces lie in contact naturally; the slightest touch of a part of their clothing, or even of the finger, is extremely painful, and the patient is actually in misery while it lasts. I have had repeated proofs that this is really a mercurial affection, and will require the temporary suspension of the medicine until it is healed. The most successful method of treating these excoriated surfaces is dusting them with some absorbent power, such as hair-powder, or *lapis calaminaris*.

Sometimes you will find that the patient after taking mercury for some time will neither have his gums nor his chancre affected by it — he may have had a copperish taste in his mouth for two or three days, but it went off — yet he looks well, even better than before he began the medicine, and he feels well, and his appetite is better than it had been for some time; seeing the mercury not affecting him as you would desire, however, you perhaps order him to rub in two drachms of the ointment each night, and after a little time, seeing no change, three drachms are directed to be rubbed in every night, and this your patient may continue resolutely to perform for three weeks — still his chancre is not healing, nor his gums getting affected; — if you push the mercury on, he either gets erythismus, or suddenly a profuse salivation. What, then, are you to do in such a case? If you have given mercury to this extent without any obvious effect, just stop the mercury — take everything mercurial away from about him — purge him very well — give him a warm bath, and with this treatment, and often without any more mercury, he gets salivated; — but suppose the profuse salivation that I mentioned as suddenly coming on while you are exhibiting large doses of mercury, should happen, is everything right then? No, you will in such cases often want even the consolation of seeing the disease eradicated, or the chancre heal, although the patient suffers all the immediate and remote distresses which so severe a pyalism seldom fails to cause. When these profuse salivations occur, mercury in every shape of course must be suspended — we must administer gentle purgatives, perhaps a warm bath or two, and the use of detergent gargles or lotions for the swollen tongue and the ulcerated surfaces in the mouth.\* If we have learned beforehand that a man has a constitution liable to resist mercury in this manner, we should begin our course with him by *small* doses.

Sometimes, although rarely, you will meet a patient, as I men-

\* I have found sulphur the best thing to check pyalism; I first used it with the idea of producing a *chemical* combination, but whether it does this, or is merely an evacuant by the bowels and skin, I do not know. A touch or two of nitrate of silver heals mercurial ulcers in the mouth rapidly. — *Ed. of Lect.*

tioned before, on whom the mercury appears to cause no change whatever, either in the gums or constitution, yet his chancre will heal under its use, and he will be perfectly cured. When mercury is agreeing with the patient, the chancre begins to heal, but perhaps you or he is in too great a hurry, and the treatment is urged too briskly, and under such circumstances the sore is sometimes observed to change its character — it shoots into granulations, and becomes what is technically called a fungous ulcer — it ceases to heal, and even may grow larger very quickly, and when this happens, the patient has taken enough of mercury, and the sore is no longer venereal; therefore leave it off, and heal the ulcer like any similar one not having a venereal origin. Sometimes you will find that after the chancre has been going on well for five or six days, it begins to spread — here, also, you must suspend the use of mercury.

When speaking of gonorrhœa, I mentioned that a serious mistake might be made by the symptoms of that disease being owing to a chancre *within* the urethra, and I should have mentioned how that might be discovered; — by everting the lips of the urethra you can generally detect it, but sometimes the orifice of the urethra is naturally very small, and you cannot do this; however, you can always discover externally a hardness in the urethra at the seat of the chancre. The very orifice of the urethra is not an uncommon situation for a primary venereal sore: the other only peculiarity in it is this, that its progress is slow, it extends more, going round the orifice, if let to take its own course, and leaves a worse disease than itself behind it after healing, viz., a very intractable stricture at the orifice of the urethra. When speaking of strictures of the urethra particularly, I mentioned that those at the orifice were some of the most intractable that we meet in practice — in fact, we can hardly ever say the patient is safe from a relapse, and therefore we should spare no exertion to arrest the progress of a venereal ulcer when it attacks that part; the healing of a chancre on the glans anywhere, does not appear to take place so readily from the due action of mercury as if situated in most other situations; we should, with a knowledge of this fact, use, along with the mercury, some topical means to the chancre at the orifice, and that which I have found answer is to touch it with a little butter of antimony; the application gives great pain, but it does not last long, and seldom fails in the effect we desire. In the case where the chancre is completely within the urethra, if it should not be discovered in time and treated properly, it will ulcerate through, and leave a permanent opening in the canal.

Sometimes when you think the chancre is within, say five or six days of healing, a swelling comes on the groin; now, if you have been using caustic to the ulcer, it is impossible to tell whether the bubo has been caused by it or the disease; but if you have not been using caustic, and that this bubo comes on while the patient is taking mercury, you are then doing too much — stop the use of the mercury, and you will find the bubo will go back, and the chancre will

heal ; under such circumstances you will scarcely ever have occasion to give your patient more mercury to complete the cure — or even if you should, very little will be requisite. So much is owing to the way in which mercury is exhibited for the cure of the venereal disease, that I think men should go back to learn how to prescribe that medicine before they write on the constant effects of mercury on any particular ulcer. In speaking of the ineffectual exhibition of mercury on diseases, where salivation was not produced, I should have mentioned that within the last few days, in consultation with an eminent physician, he expressed himself entirely of my opinion on the subject, and remarked that whether the mercury is prescribed for dysentery, diseased liver, or any other disease for which it is given, it totally fails to do service if salivation is not produced.

Sometimes mercury causes a feverish state of the system ; the patient loses flesh ; he has night sweats, &c. I do not allude to the slight febrile symptoms that always occur in the exhibition of the medicine for any disease, in continued doses, but one which rapidly prostrates the strength, and gives other evidences of a poisonous, not healthy action of the drug. This state shows he has gotten more than enough of mercury, and you must immediately leave it off. If mercury is given for a chancre, and that it causes salivation, and that this salivation is not allowed to go on — if the patient neglects himself, and suffers the ptyalism to subside, and that afterwards you recommence its use, you will find that much more mercury will be necessary to bring on salivation the second time than it did the first. If the mercury disagrees with the patient, it always alters the appearance of the symptoms, and this it is that has caused so much difficulty in the treatment of the venereal disease : and this is, likewise, the origin of much of the discrepancy which we meet with in authors concerning the symptoms and appearances of the disease itself. When a chancre comes on the very edge of the prepuce, it does not present the appearance of a circular ulcer, but a fissure, as if the prepuce was torn, and when the prepuce is retracted it seems to run along the penis for half an inch or so ; although it is hard and pretty deep, there is scarcely any swelling about it. It yields readily to mercury, and gives less trouble to the patient than would be supposed from its structure and exposed situation.\*

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### LECTURE XLIII.

The venereal disease (*continued*). — Inflammatory phymosis — Warts — Bubo.

INFLAMMATORY PHYMOSIS. — A chancre may come on with consider-

\* When a venereal ulcer forms in the integuments on the *body* of the penis, it is also very long in proportion to its breadth, but its greater diameter is transverse, and it is often of considerable size.—*Ed. of Lect.*

able inflammation, or a mild form may, by the patient using too much exercise, or by being guilty of intemperance, or getting cold, or a bad constitution, &c., become inflamed, and cause the most serious results; you see the penis greatly tumefied, and of a twisted appearance; the integuments of a red colour, either dark or bright, but of an unhealthy appearance, a quantity of thin, ichorous matter coming through the irregular and contracted orifice of the prepuce; fever, of a low character generally, is of course present with these appearances — the tongue is dry and brown — the pulse is quick and small — the bowels either costive, or affected with diarrhœa, and the general appearance of the patient indicating the unfavourable turn things have taken.\* Well, how does this end? Why, if the attack be purely inflammatory, and owes its origin to obvious and temporary causes, it may get on very well — you may, by enveloping the part in an emollient poultice, taking blood from the arm perhaps, freeing the bowels, giving nauseating doses of tartar emetic, and frequent washing out the matter from under the prepuce by means of a syringe, prevent further mischief; but sometimes it will be otherwise: from the first, on pressing the prepuce all round, one spot will be discovered harder and more painful than the rest — the

\* The student will find some little variety in the appearances and circumstances of inflammatory phymosis. In some cases the external surface of the prepuce seems to have yielded more to the inflammatory swelling than the internal, and when this is so, the opening, through which matter and urine pass, is irregular and crescentic in shape, the part of the skin in immediate connection with the frenum projecting across, or into the opening, as it were; if the patient tries to draw back the skin to expose the glans, this soft irregular opening is obliterated, and there is soon observed a firm, circular opening stretched round the top of the glans; if the retraction be continued, some little force, attended with pain, is required, and perhaps a fourth part of the top of the glans protrudes, and is evidently constricted by the opening, the protruded portion becoming swollen and red in front of it, so as sometimes to convey the idea that the whole glans is exposed, and the opening in the prepuce fairly embracing the penis behind the glans, when, in fact, a considerable portion of the glans is still concealed behind it. Should the patient be imprudent and resolute enough to make still greater efforts to uncover the glans, and that he succeeds, he finds it impossible to bring forward the prepuce again, — for the conical figure of the glans can force a passage through an aperture by its apex, which it could not do when the constriction is to be passed first by its base, and thus a paraphymosis is formed. But sometimes on looking on a phymosis you see the surface of the prepuce itself constricted; in this case it is the internal surface that yields most, and the consequence is eversion of the natural orifice of the prepuce, and a portion of the internal surface, the latter collected into a button-shaped swelling of a size proportioned to the quantity everted, and separated from the rest of the swollen integument over the glans and body of the penis by a firm constriction caused by the natural opening of the prepuce. These varieties influence the ultimate practice for the relief of phymosis, when ordinary remedies fail and a necessity exists for exposing the glans. In paraphymosis, two swellings are seen; one, a thickened ring, embracing the part immediately behind the base of the glans — this is the internal surface of the prepuce, collected into this annular figure by the base of the glans in front, and by the circular depression behind caused by the less yielding substance of the natural opening of the prepuce, and separating it from the tumid integuments behind that had been the outer surface of the prepuce, and the skin of the body of the penis, between which there is no structural demarcation. — *Ed. of Lect.*

prepuce will mortify in this spot, or it may be at some other part—the slough separates, and the opening it leaves in the thickness of the skin grows larger, and at length attains a sufficient size to admit the glans which soon protrudes through it; if neglected, or the proper treatment has not been adopted, or if it fails, as it too often may be found to do, the whole inflamed prepuce will slough off, the sloughing will not then stop, but will extend to all the structures of the penis, and never stop, perhaps, until it does not leave a particle of the penis behind.

Now, if we see a case of this description sufficiently early, what are we to do with it—should we give mercury to a patient in the state I have described? In such cases as these I have given mercury with such decided success that I made converts of every pupil in the hospital; but I must add, on the other hand, that sometimes it did not hit, and I have always found that when mercury did not succeed in this sort of case, it invariably made matters worse. Now, many surgeons who have given mercury in cases of this description, and Hunter among the rest, recommend you to give the mercury in *small* doses: my experience will not allow me to agree with them in this advice; I think that in these cases you must give the mercury in very *large* doses—in doses such as you would give to a man whose eye you wanted to save from the effects of certain inflammations, although it is ten to one he comes back to you with secondary symptoms. You cannot put patients with these inflammatory chancres, under the strict antiphlogistic regimen—they cannot bear it—for the inflammation is of a bad kind; but you must certainly enjoin him perfect rest: the applications you should apply to the inflamed penis itself must vary with circumstances—sometimes you will find that warm stupes and poultices will do best; sometimes cold lotions.

If you are called in after gangrene has commenced, and is extending, you will often have great difficulty in arresting it; for this purpose the very best application I have tried is butter of antimony pencilled on the edges and over the gangrenous surfaces, which also has the good effect of removing the pain from the part, after the first severe smarting is over. Remember above all things, notwithstanding your apprehensions of a profuse salivation, if you decide on giving mercury, you must not give it in medium but in full doses; if you do not resolve to give mercury, the very best things you can order are emetics, and I think the curious French compound of sulphate of soda and tartar emetic the best form in which you can give them. Sometimes you will think it necessary to give opium to quiet irritation—and it must be given in very large doses, for small doses make no impression whatever, and fail to give any ease. As we cannot draw back the prepuce, we often cannot tell what is going forwards underneath; we see a bad discharge: a slough appearing; and at last a hemorrhage comes on, and when it does, the patient is generally a great deal better after it; but this is not invariably the case, for sometimes the patient is greatly reduced by the bleeding—and when we see him sinking under this hemorrhage, what we are to do

is to divide the prepuce from one end to the other, and apply oil of turpentine to the bleeding vessel, for a ligature will not answer, for the arteries and all the parts about them are in such a state that they give way immediately under sufficient pressure of the thread. When there is not bleeding but merely that bad kind of matter discharged from the orifice of the prepuce, it will be necessary to prevent this foul matter lodging within the prepuce, which without care it will do ; you must therefore cause the patient to inject frequently between the glans and prepuce, and to take care he does not let out the injected fluid until the prepuce is distended with it ; I think the very best thing you can inject is the black wash, that is, calomel and lime-water, although sometimes corrosive sublimate and lime-water answers very well.

Some of these cases of sloughing will now and then get well without anything at all having been done for them, by the mere sloughing off of the prepuce all round the *corona glandis*, and the surface left healing kindly, but as we can never tell such cases from less favourable ones by appearances, we must not relax in our efforts to bring about a healthy condition of the parts, in hopes that they may not be absolutely necessary. Although it will not be easy to predict what nature may do without assistance to restore the parts to a healthy condition, we are not without means of obtaining some insight into what may happen the other way ; if the fever from being of the inflammatory type sinks, during the progress, into the asthenic form, there will be great reason to fear the result ; but there is one thing that never fails to augur the worst, it is this — a soft, boggy feel in the sloughing part — I cannot in words convey the *exact* feel I mean — but when this is perceivable you may be certain that nothing you can do will stop the destructive process until every bit of the penis, down to the scrotum, comes away ; nothing I ever tried had the least effect on it. It is a remarkable fact that, if the patient survives at all, the destruction of the organ always stops at a level with the scrotum and pubis.

There are other kinds of sloughing chancres. A man, suppose, comes to you with a chancre which he has neglected : it is in a sloughy state, and you find this sloughing rapidly increase ; here do not attempt to give mercury ; apply to the edges and surface of this sloughing sore the strong mineral acids, as the nitric or muriatic ; I have found these the best applications, although they give pain of course. Well, there is another such case which you must carefully distinguish from the one I have just spoken of ; suppose a man under a course of mercury, it begins to disagree with him, and the ulcer looks worse ; he leaves the mercury aside, and for two or three weeks afterwards the chancre is improving, but after a little time it gets sloughy ; here you must give mercury — it is the only thing to serve such a case, — whereas if you used the mercury with such a sore in the beginning, when it appeared in the first instance, and where mercury had not been used, it would only injure the patient.

I do not think it necessary to take up much time with the consider-

ation of what are called venereal warts ; they are not the consequence of chancre, or of the venereal disease at all ; they are often, however, very difficult to remove, but are by no means dangerous ; they are removable by local means, and none others are necessary — try different applications to them, and you will hit on that which will remove them ; the same remedy, however, will not succeed in every case ; that which I have oftenest seen succeed is simply sprinkling a little savine powder on them every day until they disappear ; sometimes the addition of acetate of copper may be necessary. I have seen them cut off, but if the scissors or strong caustic are had recourse to, the warts will grow again as quickly as they are removed.\*

As a paraphymosis, besides giving very great pain, may give so firm a constriction to the penis as even to cause sloughing of the glans penis, it will require prompt relief. Nature sometimes relieves the stricture by ulceration, where it was only tight enough to produce congestion, but not the degree of impediment to the circulation of the part that would bring on mortification ; but an expectation of this spontaneous mode of relief must not lead us to delay what is in our power to prevent most serious consequences, as well as to give immediate ease to the patient. The way you proceed is this ; you grasp the penis round the stricture in your left hand, and with your right you press the glans between your thumb and fore and middle finger until you empty it of its blood, and make it as small as possible ; you give a great deal of pain in this generally, but you must not relax the prepuce for an instant until you have the glans pale, wrinkled, and as small as possible ; you then, and not until then, push it back, while with your left hand you are drawing the prepuce forwards, and you will generally succeed at last in getting in the glans completely, and the patient is at once relieved from pain and further danger.† It will sometimes happen that you find yourself unable to relieve the patient by this simple method, and then, if there is an obvious necessity for quick measures, you must have recourse to the knife to divide the stricture ; you need not include in your incision any part but that narrow line which you readily detect at the bottom of the sulcus it makes in the swollen integuments, and to divide it you take a curved sharp-pointed bistoury, introduce its point at one side of the stricture, and passing it through between the

\* In the Lock Hospital there were, I am sure, twenty women affected with these warts for one man.—*Ed. of Lect.*

† Care should be taken not to push back the glans by the apex but by means of the compression of the fingers round it. The glans may seem to be reduced, though the stricture before it really is so, in consequence of its pushing back the constricting part, and in this way inverting the prepuce until the glans is completely within the skin, but the stricture is still behind it, and the moment the prepuce is removed, the glans protrudes again as before, and the patient has again to suffer the pain caused by the squeezing necessary to reduce the size of the glans ; it is known that the paraphymosis is certainly reduced by the loss of the previous resistance communicated to the fingers by the glans remaining within the prepuce, and by the relief the patient experiences on the reduction being completed.—*Ed. of Lect.*

constricting band and the parts under it, you make it appear at the other side, turn up the edge and cut through. This will in general be enough.

I have now given you, as far as I have observed them, the most usual features of primary venereal ulcers, and the changes which they are commonly subject to, without, as you may have perceived, making any attempt at a classification of them; indeed, in the present state of our knowledge, it would, I conceive, be hardly practicable, if even such were necessary for practical purposes. When a Hunterian chancre is met with, it will usually be found to commence in a small pustule, not unlike a variolous pustule; it is itchy — is scratched, and the pustule broken, but on the escape of the little matter it contained it does not at once appear an excavated ulcer — the surface and the cuticle over it are, on the contrary, raised a little above the surrounding parts; this is owing to a whitish or yellowish slough, and when this separates, the part puts on the appearance described by Hunter.

*Bubo.* — If a man has not used too much exercise, or have been guilty of any other imprudence while under treatment for his primary venereal complaints, but is going on quietly, at what period of time would you be apprehensive of the coming on of a bubo? In general, not until five or six weeks have elapsed, but there is nothing like a certain or specific time observed for its appearance; I need hardly remark to you that chancres are not always followed by bubo, nor even generally, but whenever bubo does come on, it is invariably the attendant on a *primary* ulcer; I have never known an instance of a venereal bubo making its appearance in company with *secondary* venereal ulcers, or any others of the secondary symptoms of the complaint.

There is something very curious in the production of bubo, from the circumstance of its being only an occasional occurrence; when a chancre is healed without mercury, or by an insufficient course, and that secondary symptoms follow, we have undoubted evidence that the venereal virus has passed into the system, and it could only get there through the absorbents, yet this frequently takes place without any inflammation of an absorbent gland; at another time these glands will be inflamed without there being other evidence of any absorption than the single fact of the glandular affection. But this might be attempted to be explained by saying — “Oh! there was more inflammation in or about the chancre when it caused bubo, than when it did not cause it;” this would be a fair line of argument if it had its foundation in truth — if experience showed that bubo only came on where we could distinctly trace an unusual inflammatory action going on in the chancre — but all experience is directly opposed to that, and if venereal bubo owed its origin to the simple irritation of the sore on the penis, we should expect that cause to be more prolific of such effects, and that when the glandular swelling appeared it should accord in its characters with others produced by simple irritation, where it was impossible to suspect any

specific matter, the characters of which are very uniform, and widely different from the cases we are considering.

There is another curious circumstance connected with venereal bubo — which is, that wherever the chancre may be, it is the superficial absorbent glands alone that are liable to become affected; suppose the chancre on the penis — you know that the absorbents of that organ are arranged into two sets, the superficial and the deep; — now, if the chancre is seated in any of the structures connected with the superficial absorbents, as the prepuce, a bubo may occur in the superficial set of inguinal glands, which is the most common place for it to appear, or in a small gland found sometimes on the dorsum at the root of the penis, or in the lymphatics themselves there, or about the pubis; but if the primary sore be in structures where absorbents are found that go to the lumbar and sacral glands, the formation of a bubo rarely takes place. Bubo, no doubt, does sometimes form under these circumstances, but this may be accounted for by the ascertained fact, that the two sets of absorbents of the penis occasionally communicate, and that this explanation is further borne out by this — that when bubo forms from chancre in any of the tissues of the organ, still it is the superficial glands, and those only, that are affected.

A venereal bubo comes on in this way; — one of the glands near Poupart's ligament attracts the patient's attention by his feeling a little tenderness in the groin in walking; it has become very tender to the touch, and even at this early period has become fixed to the surrounding parts; the pain increases and the gland enlarges; another gland near it soon joins it in the inflammation, or there may be two or three others, which speedily become fixed to the surrounding parts in which they are situated: they also become united to each other, and can no longer be distinguished but as one tumour, which goes on to suppuration more or less quickly. The progress of the bubo is sometimes attended with excessive pain, and sometimes with very little: in either case the ripening of the abscess goes on, but is in general longer doing so in proportion as the pain is greater.

Bubo, as I have said, does not come on in the inflammatory stage of chancre, but in the fifth week, when perhaps the sore has nearly healed. Now, it is said that if you heal up a chancre suddenly you will be the means of causing a bubo to form; this, however, is an error, and I will tell you the true explanation of the occurrence — it is not the suddenness with which the chancre is healed that produces the inflammation of the inguinal gland, but it is the sudden and violent effect of the *mercury* on the constitution; you have a patient whose chancre is doing very well under the use of mercury, but after a little time it is not doing so well, and then comes on a bubo — and the proof that it is brought on by the mercury disagreeing with the constitution is this — that if you now stop the mercury, and give your patient medicine to clear out his bowels well, and stop the mercury for a day or two, the chancre begins again to heal,

the bubo to disappear, and finally your patient to get well without the necessity perhaps of giving him another particle of mercury; and this is one of the reasons why you should be very cautious in the way you exhibit mercury. Although I have stated to you the usual way in which a bubo comes on, you will remember that some cases will come before you where the chancre and bubo have made their appearance almost together, and where no mercury at all had been used. Now, suppose a man comes to you with both a chancre and a bubo, and that he had not used mercury at all — to that man you must give mercury — it is the remedy in this case, although it was in the other the cause of the complaint; the co-existence of the bubo will make no difference whatever in your treatment from that of the chancre alone, and both will get well together as the mouth becomes affected. Even should the tumour be of considerable size, and the integuments over it have become red, give him mercury and persevere in its use, although at the first onset it may seem to grow worse under your treatment. There are some men who are particularly prone to bubo — in whom a *very* small quantity of mercury will cause it; — I had a patient who, I was aware, had this peculiar disposition, — I began cautiously with him, yet five grains of blue pill every night for seven nights brought on the bubo; — well, I stopped the mercury until I had removed the bubo by rest, &c., and then recommenced its use, which I was enabled to continue cautiously until the man's cure was effected; — you will find always in such a case as this, that the patient will bear twice as much mercury the second time, without it bringing on the bubo, as he could the first time.

Are we to go on with mercury in every stage of bubo? Some say "Yes, for you save time" — now, I think differently; and that you will often *lose* time by the practice; a man comes to you with a slight inflammation of the gland, you give him mercury, and perhaps push its use the farther as you find the affection of the gland not subsiding under the moderate employment of the medicine, and the result is that you make that bubo suppurate; but that is not the worst, for the suppuration so induced will be ten times more troublesome and tedious than a suppurating bubo under other circumstances; it, in fact, causes fever and disturbance of the constitution, and whenever a local cause brings on fever, there mercury will disagree. There is one circumstance that occasionally happens that might perhaps deceive you, and lead you to a groundless fear of an approaching bubo; it is this, whether it be from something wrong in the materials of which the ointment is composed, or from individual peculiarity, I cannot say, but the process of inunction sometimes causes a great degree of tenderness in a gland or two in the groin; but you do not find them become fixed as the incipient venereal bubo constantly is: all you have to do is to have the mercurial ointment rubbed in somewhere else for a time, and when the irritation is gone you may rub in, in that thigh, as before, and without much fear of its return.\*

\* I may be permitted to mention buboes I have seen two or three times in the

Now, suppose a bubo has pointed, and may be expected soon to open, should we allow it to burst of its own accord, or should we anticipate the natural process by the use of the lancet, or other means? That is a matter of such little importance in its results that I would always leave it to the patient's own decision, if the bubo is in a proper condition; but you will be often urged to open one that is actually as hard as a raw turnip: although the skin may be red, let nothing induce you to have anything to do with this; don't meddle with it, but leave it to itself; indeed I do not know anything you could expect to gain by opening even a healthy ripe bubo. There is one description of bubo where your interference will be necessary: it is one that forms in persons generally of a weak lax habit, or with some derangement of the health; in the bubo of a healthy young man, the skin is of a brownish-red colour, the cuticle cracked and scaly on its surface, and the swelling prominent, like any phlegmonous abscess; but in the one referred to, the bubo is large, takes a long time coming forwards, is indolent, is *flat* on its surface, and the skin of a bluish colour, or rather a dark purple;—this you should open, and that too from end to end; if you only make a puncture in such a bubo as this, you will have it discharging a thin watery matter for a month or two, without seeing any chance of its healing; a large portion of the skin will be removed by ulceration, and what remains will be overhanging and inverted, and before it can heal up these edges must be removed with caustic.\* In the common bubo I would just make a puncture with a lancet where it pointed, or where the skin was thinnest, merely sufficient to let out the matter, for the skin here is thick enough, and possesses sufficient vitality to allow it to unite below; you will, however, have in general to make your puncture a little larger than you need in a common abscess, for the matter will be found of a thicker consistence in a venereal bubo than in most other cases, but the smaller you make the opening, with this understanding, the better.

#### LECTURE XLIV.

Venereal disease (*continued*)—Bubo (*continued*)—Non-venereal bubo.—Secondary venereal symptoms.—Venereal eruptions.

SOME have recommended buboes to be opened with caustic, at least

Lock Hospital, which were attended with extraordinary pain, and where everything that was tried to reduce inflammation and allay the pain failed; but when, as a last resource, mercury was given, in ten or twelve hours all the benefit hoped for from the previous treatment was accomplished by the quick introduction of the mercury. — *Ed. of Lect.*

\* When a pupil in the Lock Hospital, I used to cut down the projecting and overhanging edges of these, and other descriptions of intractable buboes, with a scalpel, quite on a level with the surrounding skin, with the most decided advantage over caustic; if the edges were *completely* levelled, the ulcer, however large, very seldom failed to assume a healthy aspect and to heal rapidly. From the mode of exhibiting mercury in that day, many more of such cases were seen then than now. — *Ed. of Lect.*

certain kinds of them, for the purpose of exciting a healthy action in them. I do not know any kind of bubo that would be better opened by caustic than by a lancet, and think if it was deemed necessary to stimulate one to change its condition, that small blisters would be the better and milder plan. Sometimes a bubo after being opened gets a number of blackish spots on it, or it gets, day after day, successions of inflammation, and forms fistulous canals extending towards the scrotum, which are excessively painful; in these cases mercury has been doing harm, and of course must not be continued; such a case as this is not to be treated mildly, but vigorously; what you are to do is to stuff the cavity of the ulcer with red precipitate, and you will find its character quickly changed — it will take on the disposition to heal — the patient will cease to complain of the pain of the fistulous canal, and it will begin to fill up; — if instead of doing this, you merely slit up the fistulous canal, and have gotten fairly to the bottom of it, as you think, you will find next day that your bistoury had not reached the bottom or end of the canal, or at least that it had continued subsequently to burrow beyond your incision, and so it will continue its progress. With the local treatment I have recommended, you will likewise take care to improve the constitution of the patient, and likewise to improve the original ulcer by pressure, along with the stimulants, just as you would do on ordinary principles with a bad sore on the leg, or anywhere else — you will not get half so much good of it without this pressure as with it, and the way I apply it is — I press the surface of this kind of bubo with a pledget of tow made as hard as I can, and bind it on with a bandage tightly; — remember you will not achieve anything by mild treatment in these kind of cases. Sometimes you have an open bubo with its purple edges of skin overhanging the ulcer — rub these edges with potassa fusa: — I have often seen cases where mercury was given moderately, with an ulcerated bubo not more than two inches in circumference, and things appearing to be going on well, suddenly undergoing a change — the bubo becoming hard and beginning to extend itself until it reached down the thigh, leaving the blood-vessels quite bare, and upwards on the pubis and abdomen, leaving the muscles exposed as if they had been dissected, and thus proceeding by sloughing to a great extent; — Mr. Obrey could not cure this, and he knew more of the venereal disease than any other man I ever met, and by observation too; — what I have found to succeed in this case is, to suspend the mercury, treat the sore with the strong mineral acids, or muriate of antimony rubbed on the edges, and in two or three days they will be better — even in the centre of the ulcer, which you had not touched.

This improvement and healing after it has gone on for some time will, perhaps, again change for the worse, — its surface will become ash-coloured and sloughy, and have altogether a bad unhealthy appearance; — on this second change give mercury, and you will find now that it will do service; — you will also administer bark, and carefully watch every change that may become perceptible in the

local disease, or the constitution, and act accordingly. Sometimes the bubo heals, but the fistulous canal continues to ulcerate, and leaves a fissure which extends often even to the anus ; here you must stop the mercury, and try various local applications, one of which will at last succeed, and the fissure will slowly and reluctantly heal — but if you continue to give mercury, the ulceration will continue to extend.

There is a question agitated, and one of some practical importance, too, but which is still undecided — namely, can a venereal bubo ever come on without any chancre having pre-existed? I do not know whether in some cases I witnessed there might not have been a little ulcer which had healed up, or whether the venereal virus may not have been absorbed without any ulceration, but of this I am confident — that I have often seen a true venereal bubo occurring where there was not the slightest vestige of ulceration or even abrasion on the penis.

But you will find buboes, sometimes, without there being anything venereal in the case at all — but arising from a bad constitution, and, although this is actually their cause, the patient does not seem in bad health — he looks well — says he feels well, and that his appetite is rather better than usual, and he sleeps well — but remark this — that patient is constantly subject to headaches, and his pulse is never under 96, and as often 120 in a minute, and this will seem singular to you, as there is neither local pain nor general fever to account for it. It begins in this way — one of the inguinal glands, most commonly of the deep-seated set, becomes enlarged, and may attain the size of a large walnut without the least alteration in the integuments over it, either as to colour or tension ; it gives but little pain or uneasiness, except the patient uses too much or too violent exercise on foot ; indeed, so trifling is the inconvenience from the presence of the swelling, that the affection may have gone on a considerable time before the man thinks of applying for advice, and therefore it is seldom seen at its very commencement. It goes on slowly to suppuration, with little alteration in the mildness of its progress — the integuments get redder from day to day, but still you see nothing like a *pointing*, such as you see in most other abscesses, and at length, in about six weeks or two months, it breaks of itself, and some good pus is discharged ; but you are not yet done with it, for very often a second or even a third swelling will come on in succession, in the immediate neighbourhood of the first, presenting the same characters and running the same course as their predecessor, equally mild and equally indolent. The openings which form for the discharge of the matter are just as indolent as the tumours had been — they continue small, showing no disposition to enlarge by ulceration, discharge but little matter, of a good quality, and will frequently go on in a half fistulous state for two, three, or even four months, before they are healed ; this is the ordinary course, but sometimes the openings will take on the regular character of fistulous sores, discharging a thin, gleety, but mild matter, and small in quantity, and when they assume this dis-

position they will take as long as twelve or fifteen months to heal up, if left to themselves. Sometimes some of the glands in the opposite side begin to swell during the progress of those originally affected, but I have not seen them run on to suppuration. During the whole course of this affection, up to this point, the only thing the patient may complain of is that he thinks he is more easily fatigued than he used to be. This is not, however, invariably the case, as I have seen one or two cases where the pain was very severe in the tumour, and the patient will sometimes fall into hectic of an aggravated *appearance*, although not difficult to remove.

Now, what are you to do with such a case as this? The local treatment, of whatever description, seems to have no effect whatever; leeching, fomenting, cold and astringent lotions, &c., did just nothing, at least until suppuration had far advanced, when poultices seem to assist that process. Purgatives alone are of any avail to relieve the headache, and they must be active ones, and often repeated; until the patient has begun sensibly to improve, nothing that I have tried will much reduce the quickness of the pulse. The previous chancre, or other primary symptom, and the unfrequency of true venereal bubo occurring in those lower or deep-seated inguinal glands, can hardly fail to distinguish this glandular affection from syphilis. The most you can do for these cases is to purge the patient frequently; to send him to the sea-side, and let him have tepid salt-water baths, with light tonic medicines; but if you give such a patient mercury, he will directly fall into hectic, even before the mercury could affect his mouth. It is a very unmanageable disease, and such a patient may think himself very well off if he gets well in four or five months; his night sweats and other hectic symptoms reduce him so low that you are beginning to fear that he cannot recover, yet send that patient to the sea-side, and in one fortnight he gets better and continues to improve until you have him quite well; and he will have this comfort in his recovery, that his general health will be a great deal better after such an attack than it had been for a long time previously. Now, as a true venereal bubo may appear without being preceded by chancre, it is possible to confound some of those swellings of the inguinal lymphatic glands with it, although they are totally unconnected with a venereal origin; and this mistake will be the more serious as the cure in one case might kill the patient in the other. The points of resemblance are in some instances well enough marked; thus you observe in what are called scrofulous buboes, that they are of an oblong shape, and soon become fixed by adhesion like the venereal one, but these two characters alone would be insufficient for identifying one with the other—for the scrofulous bubo is found in the deep-seated glands, and sometimes in the inferior set of them, while the syphilitic are seated in the superficial set, and their long axis runs in the line of Poupart's ligament; in the scrofulous swelling you cannot get your fingers under its base or feel its line of attachment because it is too deeply seated; you cannot grasp it; there is besides less pain in it than is generally experienced

in the venereal bubo: unlike the latter it has little tendency to suppurate, but when it does, the matter formed has not the viscosity or colour of that of a venereal bubo.

Now, another man will get a swelling in his groin, and all the cause he can assign for it is that he had got a severe wetting — that before he had an opportunity to change his clothes, they had nearly dried on him; or he will say that for several days he had been obliged to exert himself more than he was accustomed to, or than he thought he was able for, and had felt himself greatly fatigued in consequence. The glandular swelling in this case will also be of an oblong shape, and will quickly become fixed like a venereal bubo, but it is always preceded by a high degree of constitutional derangement; he will get a severe rigor, or he may fall into a profuse perspiration without any previous chill or heat of consequence, and there will quickly follow an utter prostration of strength. Why, if you were to mistake one of those cases, and throw in mercury, you would, in all human probability, destroy the man; you must do the very reverse, you must avoid anything that would have a tendency to lower him more than he is at present; you must support his strength with good generous diet, with perhaps the addition of wine or porter; and if necessary, exhibit tonics. This plan will soon bring him round, while the treatment for a venereal bubo would be the most unsuitable for the case you could adopt. I need hardly mention the swelling of the lymphatic glands of the groin that come on from an abrasion of the cuticle on one of the toes, or some such thing about the foot, for the case is one of simple irritation, and can hardly be mistaken for a venereal bubo at all.

It is not necessary for me to lose time in speaking of chancres or buboes in women, for they differ in nothing from those affections in men.

#### SECONDARY VENEREAL SYMPTOMS.

One of the most remarkable facts in the history of the venereal disease is — that if from any cause — from carelessness, or neglect, or ignorance, the primary symptoms are not treated properly; if the disease is not perfectly cured, there will arise, after some interval of time, a train of secondary symptoms having characters quite different from those that preceded them; that many of these are sufficiently uniform to be recognised as having proceeded from some primary venereal affection, before the previous history be known; and that a certain order is observed in the structures and organs they may invade. Nothing of this nature can be more accurate than Mr. Hunter's account of these constitutional or secondary symptoms, and the order of parts in which they appear; but you must not fall into the mistake of supposing an absolute uniformity in these matters, for such is not the case; they do not invariably come on in the same order — for instance, the sore throat may come on before or after the eruption; the iritis may come on when the second order of parts is en-

gaged, &c.: nor do they come at the same distance of time from the primary symptoms in different cases; if a man's chancre is neglected, or badly treated, the secondary symptoms may come on before the ulcer is well, and thus the patient have the primary and secondary affections from the same infection at the same time; the appearance of the secondary symptoms, during the presence of the primary, sometimes does not alter the characters of the latter, or the line of treatment; but sometimes, on the other hand, the primary ulcer, which had been doing very well until the secondary symptoms showed themselves, suddenly takes on the sloughing or phagedenic process; but these effects usually cease when secondary symptoms are fully established. In some cases several months will intervene between the complete disappearance of the first symptom and the coming on of the secondary; or, if we were to believe some accounts given us, even years may elapse, and yet the patient not be safe from the reappearance of his disease in a secondary form; but sufficient reasons might be given for withholding our implicit confidence in many of these tales.

Much as the opinions of such a man as Hunter should be respected, there are some things in his work on the venereal disease from which I find myself obliged to differ, as they are at variance with my own experience concerning them; at present I shall only mention one or two of them. He says, if a secondary venereal symptom should attack a part, and that it is afterwards made to disappear, it will not again return to the same part: now, to this opinion I must deny my assent, for I know a patient whose venereal eruption returned three several times after having completely vanished; nor is this an isolated instance against the validity of this opinion of Mr. Hunter's. Another opinion he held was this — that a *secondary* venereal affection was incapable of originating the venereal disease in another person; now, I am decidedly of a contrary opinion; I could tell you many facts in my own experience that would be sufficient to prove, beyond a doubt, that secondary symptoms may produce primary venereal ulcers in another individual, who never before had a venereal complaint. There is an occurrence which I have more than once witnessed: you are aware that children may be born with the venereal disease, the symptoms of which we shall consider hereafter; now, suppose an infant comes into the world covered over with a full crop of eruption, the venereal character of which cannot be mistaken; suppose that infant given to a healthy woman to nurse, that woman by suckling such a child will get a venereal sore on her nipple — this, if neglected, will be followed by a venereal eruption on her, by ulcers or other venereal affection of throat, or any other secondary symptom. To put the matter still further beyond doubt, there is one other result that may follow this infection of the nurse by a diseased infant — it is a very extraordinary one I admit, but still one that cannot be questioned — namely, that although she may not have complained of anything wrong about the pudendum, yet if she should have connection with her husband at this time, she will give him the venereal disease.

I have met one or two instances more, in the course of my experience, which will advance the proofs of the validity of my objections to Mr. Hunter's doctrine on this subject, beyond any possibility of mistake, and the fact which I am about to state was the one which drew my attention first to the subject. When I was very young in practice, I was called in to see a child that had an eruption; I thought it too soon for a venereal eruption to appear, but on examining the nurse, I found she had a full crop of venereal eruption on *her*; now, the mother of this child never had a single symptom of the venereal disease. What is the inference we must inevitably draw from this fact? Why, it is that the clean healthy child, put to the breast of a woman labouring under a *secondary* venereal affection, was contaminated, through this eruption, with the venereal disease; there was no other source from which it could have been received — *that* I satisfied myself of.

Now, there is another case I may mention that will not only go to prove the truth of my position, but may at the same time act as a salutary caution to such of you as intend to practice midwifery. One cold winter's morning, before it was well light, I was going to the hospital, when I met a medical friend of mine, an accoucheur; he showed me his hands which were covered with a secondary venereal eruption; he mentioned that he had had rheumatic pains, which had left him when the eruption had come out; now, this gentleman was afterwards very unfortunate in his practice, for several females attended by him in their lying-in got the venereal disease from him in a primary form, and many of them had communicated the disease to their husbands, also in a primary form, although he had only a secondary venereal ulcer on his finger, and never had a primary venereal sore at all. The circumstance must still be in the recollection of many — it made a great noise at the time, and was productive of great misery and mischief to some of the parties concerned. I recollect another very melancholy instance in point. A young surgeon in this city was paying his addresses to a young lady, to whom he was shortly to be married; he had some secondary venereal symptoms about him, and one of them was a secondary syphilitic ulcer on his lip, by means of which, in kissing each other, the young lady got a venereal ulcer on her lip; I used to attend some of the family on extraordinary occasions, and was called in this case, and found out that the young man who had communicated the disease was trying to cure her without letting her family know what was the matter with her — and she unfortunately lost her life through the haste with which he threw in the mercury. If one has secondary venereal symptoms, and gets a child, that child will be diseased. Mr. Hunter believed firmly in the identity of gonorrhœa and the matter of chancre; from what I have before said you know my opinion on that head; I believe few, if any, surgeons of the present day consider them the same disease.

I mentioned that the period was variable of the appearance of secondary symptoms after chancre, and that might in some cases be to

a certain extent attributable to peculiarities of constitution, and not unfrequently to the line of treatment pursued for the cure of the primary disease. When mercury has not been exhibited in the first instance, and that the chancre is made to heal by local treatment, we certainly find the secondary symptoms generally take a longer time to show themselves, that they are milder in their forms, and produce less constitutional disturbance when coming out. On the other hand, if mercury had been employed for the chancre, but in quantity insufficient to eradicate the disease completely, that there the secondary symptoms will appear in a much shorter time. Again, if the secondary disease is lying dormant in the system, and that a severe accident, or fever produced by exposure to cold, or the alterative treatment by mercury for a derangement not at all venereal, or in fact a strong impression on the system of any kind be made, the effect will sometimes be the sudden and unexpected appearance, perhaps, of a full crop of venereal eruption.

The order of parts in which secondary venereal symptoms show themselves is dependent apparently a good deal on structure; thus soft parts, such as the skin and mucous surfaces, generally exhibit them first, while the second order of parts are the fibrous organs, such as the periosteum, and the bones; but particular parts of those tissues are more prone to these attacks than others; for instance, the throat, tongue, and lip, are among the first, as also certain regions of the skin, as in the forehead, breast, or arms; in the second order of parts those least covered are most generally first invaded, as the shin, or about the ulna. The coming out of a venereal eruption, or other secondary symptoms, is usually preceded by more or less constitutional disturbance. A man will consult you about a flying rheumatism, as he says, which affects his joints and bones, one day in one place and the next day in some other; that they are particularly troublesome to him at night; that he finds himself growing thin, and is not able to use so much exertion as he used; that he finds himself growing weaker every day, and that coming on evening he is always worse. Any treatment that he may be put under, from the supposition that it is rheumatism with which he is affected, gives him no relief of any continuance; he has a miserably dejected appearance, and both mental and bodily power are very much depressed. Well, all these symptoms quickly disappear on the development of his sore throat or eruption; but in many cases those premonitory symptoms are very slight — so slight, indeed, as not often to come under the surgeon's notice.

#### VENEREAL ERUPTIONS.

The true syphilitic eruption, as described by some authors, is strongly marked, — first assuming a papular form — then becoming scaly, and finally, forming in some part an ulcer, which is the *secondary venereal ulcer*. This is sometimes exactly what occurs; but if it is meant to be taught that this is the undeviating form and pro-

gress of a venereal eruption, and that no other description of eruption can be strictly considered venereal, I can only say it is quite at variance with what I have seen of the disease affecting the skin. I believe the true secondary venereal eruption assumes several forms, although I cannot pretend to say what the cause determining to this or that form may be. I have witnessed a form of venereal eruption with characters so closely resembling measles, that it was actually considered as such, and treated accordingly. Sometimes it will assume a pustular form, and ulcerate. Sometimes the secondary cutaneous affection can hardly be called an eruption at all, for instead of it you will observe a kind of superficial ulceration here and there, and the remainder of the skin unaffected. Sometimes the venereal eruption shows itself in the form of horny crusts — which always degenerate into ulcers, if allowed to take their own course. Nor is this all, for I have very often witnessed more than one form of eruption existing *at the same time* from a single infection; I have seen at the same time one kind on the face and a totally different kind on the trunk; I have seen the spaces between the papillæ of a papular eruption occupied by little pustules.

Now, if you treat a patient for one or other of these, but that something arises to interfere with the complete accomplishment of his cure, he may, as I said before, have a return of the eruption after a little time — but are you certain it will be the same description of eruption as the first? No, — I have seen in the hospital three different kinds of eruption following one the other in this manner; — in fact, while a man is under treatment for a venereal eruption, if he be of a bad constitution — if he will not submit to proper restraints as to diet, &c., or if the mercury takes a wrong turn with him, which it will sometimes do under the best care — from any of these causes, or perhaps from others which we do not understand, the eruption will alter its characters, even more than once or twice, perhaps, while the patient is under cure.

A late ingenious writer appears to be of opinion that there are several distinct kinds of venereal poison — manifested by distinctly marked primary symptoms, and that each of these kinds has a distinct eruption of its own, so constant and so well marked that, by looking at one of them, you can tell at once to which of those poisons it belongs. I certainly do not think there is sufficient foundation for entertaining this hypothesis. It is one that, as I can venture a surmise on the matter, seems to have had its origin in the supposition of an analogy existing between venereal eruptions and some exanthematous diseases, and which I deem an error, for to me there seems a great deal of difference between them. Let us take small-pox, for example: — if you inoculate a person with small-pox, you cause a peculiar pustule, in a given time, and that pustule, will have precisely the same characters as the variolous pustule, originating in any way, on any part of the body, or under any circumstances of constitution or treatment. Now, the venereal eruption, as I have often observed, will sometimes exhibit totally different characters in

the same individual, at different periods, *from the same infection* ; or, as I said before, you may have two kinds of eruptions existing at the same time in one individual.

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## LECTURE XLV.

The venereal disease (*continued*)—Venereal eruptions (*continued*)—Syphilis in scrofulous habits—Treatment.

As the venereal eruption has no specific time for making its appearance, we may, on this ground alone, account in some measure for its varieties of form — sometimes the eruption will not appear until after an interval of six months from the healing of the chancre, and in that time various occurrences may arise in the constitution to alter and modify the appearances of the venereal eruption to the full extent which we witness. If you take a man with any one form of venereal eruption, and give him mercury for it until you run down his constitution, without, however, entirely removing his symptoms — then stop the mercury, and adopt measures to recruit his health, and after a time, a venereal eruption reappears, it is ten to one that the second eruption will be different from the first.

You do not observe in syphilitic eruptions what is seen in other eruptions to which they have been thought somewhat analogous — namely, that the whole of the eruption comes out at once, that is within a few hours, — in the syphilitic you may see it declining in one part, and appearing in another at the same time ; you very often have an opportunity of observing it in several stages of its progress at any time during the first month, until it all at last fades away at no determinate period from its first appearance. Sometimes the eruption is extensively spread over the surface of the body, but at other times it is confined to one region, or even to a spot you might cover with the palm of your hand. You might, perhaps, suppose that the more of the eruption that appeared the more mercury should be required for its removal — but I think the very reverse is the case ; — I think where the eruption comes out fairly and fully it yields more quickly and completely than where you have only a few spots here and there.

Some suppose that there is great advantage gained by treating these eruptions *early* with mercury ; but I am far from an unconditional acquiescence in this notion — I think you may begin to prescribe mercury too soon, and for this reason ; — the eruption is ushered in with fever, and among many individuals in this state you will see every degree of severity in the symptoms of this fever from the most trifling to the most intense — but whether mild or severe, your first duty is to remove the fever ; if you give mercury during the eruptive fever, you will not do the eruption one bit of good, but

will probably do the patient a mischief. Your patient has been complaining of pains in his loins, — that his throat feels uneasy, &c., — well, you begin your treatment by ordering a full sudorific, and if you get him to sweat freely the eruption comes out and the febrile symptoms disappear. These things are, however, not always so much under our control, for it must be admitted that we cannot constantly tranquillize the fever in this way, sometimes after the eruption has come out, the wandering pains have become fixed — the patient gets into a hectic state, with night sweats, diarrhœa, &c.; and this hectic fever takes the place of the eruptive fever, and indicates a real breaking down of the constitution; — in this case you must not wait a moment, but throw in mercury at once. But in such a case as this you must be very circumspect, and spare no pains to acquaint yourself thoroughly with the true state of the case, or you may be guilty of a fatal error. I had once an opportunity of seeing a mistake of this nature: a physician in great practice was consulted on the state of a young man who was in the incipient stage of hectic fever, which is often, as I told you in the early part of the course, preceded by wandering pains, no matter from what the hectic may have proceeded; the young man had these pains in his limbs, and his doctor began to think that it might be something venereal; he examined his skin, and found here and there some of those enlarged papillæ so common in persons in perfect health; he, however, took confirmation of his first supposition from this simple circumstance, and ordered his patient to commence a course of mercury immediately, and the consequence was — that the man was rapidly thrown into the worst stage of pulmonary hectic, and died of phthisis. Now, a searching inquiry into all the circumstances of this case would certainly have prevented such a catastrophe.

What is the best form to exhibit mercury in for these eruptions? I think friction with mercurial ointment the best method for every form of secondary syphilis but one, and that is the species of eruption called venereal rupia, for which if you employ frictions the patient will grow worse instead of better, and you will not be able to cure him in less than twelve months after; this is the only venereal eruption that cannot be cured by friction, and indeed the exhibition of mercury, in any form, is a matter of great delicacy in venereal rupia; the constitution is greatly weakened in these cases, and while it only changes the scabs into ulcers of a very tedious character, it will often bring on a diarrhœa that will reduce the patient to the last extremity, or even prove fatal.

There are some venereal eruptions which yield more readily to mercury than others; of these the scaly eruption, that which seems to be scaly almost at its very first appearance, fades quickest when the mouth becomes affected, and next to this are the papular, and the copper-coloured eruption or blotch. There is one description of these eruptions, besides rupia, which sometimes receives the influence of mercury very badly, the pustular; should you begin a

course of mercury in as large doses for the cure of pustular eruption, as you may with safety and advantage in the scaly, this will be the consequence, that directly the system gets fairly under its influence, the pustules will spread and ulcerate; the ulcers will assume one or two forms; either it will be superficial, and spread to some extent by its margin, or it will be limited in its surface, but eat deeply into the skin: there is but little discharge from either, and if left exposed to the air, soon scab over. The pustular eruption sometimes may be seen on one part of the body and rupia on another, and sometimes the improper exhibition of mercury changes one form into the other.

Although, as I have said, the incautious use of mercury in large doses does serious mischief in these cutaneous affections, yet you would be surprised how readily they generally yield by commencing with ten grains or a scruple of the ointment rubbed in each night, or from three to five grains of blue pill according to circumstances, either alone or with tonics, or gentle diaphoretics; but as for rupia, it is not one person in an hundred affected with it that you could venture to give mercury to, in any shape or dose, and in that one itself, although it may do no mischief, yet it will hardly produce any beneficial effect. Even the papular eruption, which in general is manageable enough, requires some watching: if, instead of disappearing gradually; you see here and there a disposition to suppurate, you must at once stop the mercury, and attend to the general health; this restored, you may or not, as you think necessary, begin cautiously again. In those cases where mercury acts most beneficially, you are not to lay aside the use of it immediately that the eruption goes; you should at least continue an impression on the mouth for six weeks for these eruptions; certainly not for a less time; if you but continue the use of mercury for three weeks, the disease will return, although, no doubt, in a milder form; if, on its reappearance, you have recourse to the mercury again, the eruption again nearly entirely goes; you stop the mercury a little too soon, and again the eruption reappears, but in a still milder shape; and at last it grows so mild that the constitution seems to have the power of overcoming these remains of the disease without the further use of mercury.

As a venereal eruption on a man's face is for many reasons a very disagreeable companion, and gives much more annoyance to him than more serious matters that can be kept from public view, you will be strongly urged by your patient to relieve him of *that* at least quickly, and he will promise not to hurry you with the rest of his complaints. Well, there is no great harm in trying to indulge him, and the best preparation of mercury you can exhibit for this purpose is corrosive sublimate;\* but I caution you not to

\* The form of exhibiting this medicine which I gave in a former note, will probably be as good as any for its solution and suspension. I believe corrosive sublimate will be found to answer best, if given immediately before or after meals. — *Ed. of Lect.*

consider the removal of his eruption by this preparation as a final measure ; when you produce the effect you desire by it, you must finish the cure by frictions or blue pill, or you may be pretty certain of having to treat some other secondary affection in him at a future day.

During a course of mercury for any secondary form of the venereal disease, you will find the compound decoction of sarsaparilla really a very serviceable medicine in conjunction with it ; in fact, you may occasionally remove the milder forms of venereal eruption by decoction of the woods alone, or if there should be much concomitant fever, by the addition of some antimonial wine with it, as tartar emetic. The eruption, if removed by sarsaparilla without mercury, will return again and again, but each time in a milder form than the preceding, until at last the constitution appears able of itself to wear out the disease altogether. But what is the consequence ? Why, the patient falls into that state of the system which we are in the habit of calling scrofula.

Under the term scrofula are comprised so many dissimilar appearances, I might almost say so many different diseases, that it would be impossible to give a definition of it as a single disease, such for instance as we might of cancer. It cannot be communicated from one person to another either by contact, inoculation, or any other means, if we except, as perhaps we should, the fact of scrofulous parents getting children of similar constitutional tendencies. We find scrofula often remains dormant in the habit until some change is brought about by accidents or diseases in the constitution, as hurts, the fever of small-pox, measles, or any other kind of fever, &c., or from some of those natural changes which occur to every one from birth to puberty. Its first manifestation is often during dentition, and the symptoms are ordinarily swellings of the lymphatic glands about the neck ; we find those behind the ears, or about the mastoid processes, or under the jaw, usually affected ; I have known some of these glands remain for years swollen to two or three times their natural size, and all that time neither cause pain nor discoloration of the integuments, and then begin to grow smaller, until the swelling had entirely disappeared ; they, however, have a disposition to suppurate in general, and the patient is made aware of what is going to happen by the tumour becoming hot and painful, and the skin taking on an inflammatory blush ; at last it softens, and fluctuation is perceptible, the skin slowly ulcerates, and a considerable quantity of matter is often discharged ; the opening does not show much disposition to heal, but the skin becomes of a bluish colour, gets thin and smooth, and for a long time more or less of a thin discharge continues to come from the fistulous orifice. If two little glands in the immediate neighbourhood of each other become affected together, they coalesce, and you very soon can distinguish them but as one tumour. Sometimes the opening which forms in a scrofulous abscess continues to enlarge until an ulcer of some size is formed, which is the scrofulous ulcer, and when it forms about the mamma or axilla, &c.,

might, from its mere appearance, be thought to be cancer ; I have known some eminent practitioners deceived, or at least unable to come to a satisfactory decision on some of these cases.

You have probably from reading considered the matter of scrofula as always of that thin whey-like kind, with flakes of lymph floating through it, and indeed such matter is vaguely called scrofulous wherever it is found, or under any circumstances attending its formation ; but this is a very fallacious symptom of the existence of scrofula, for you will in no case see better or more healthy looking pus than is often let out of an abscess in a scrofulous looking person, and which will ultimately take on the acknowledged characters of a strumous ulcer : and on the other hand, you will meet the curdy matter where, except from its appearance, no one would suspect anything scrofulous in the case. The constitutional disturbance attendant on the formation of a scrofulous abscess is sometimes considerable, and the pain proportionately great, but more frequently the symptoms are mild ; some form with hardly any perceptible fever or local uneasiness, and therefore little can be learned from these ; in cases where the lymphatic glands in the neck become affected through the influence of syphilis, or the unhealthy action of mercury, although the symptoms run generally higher in such cases than they do in ordinary ones.

The tonsils are not unfrequently the seat of scrofulous ulcerations, as also the tongue and the nose, and some of these affections might readily enough be confounded with the secondary appearances of the venereal disease ; the distinctions between these we shall consider hereafter, but at present I need only say, that suspicious looking ulcers of the soft palate, of the tonsils and tongue, with those still more suspected ulcerations of the nose, with formation of hardened crusts, have come under my notice, where there could not be a shadow of reason for thinking them venereal, from the character of the parties, and yet the most successful treatment I have tried is mercury for them, and particularly by fumigations, which, when applied to an ulcerated surface, will often very quickly salivate. Scrofulous ulcers of the skin might in some cases be confounded with syphilis ; they have often a hard base, and may be combined with affections of the throat and pains about the extremities ; in many such cases mercury will restore the patient to health when everything else has failed.

Venereal affections of the joints do sometimes present many of the characters of the scrofulous kind ; I had occasion, in speaking of white-swelling of the knee, to direct your attention to a venereal affection of the same joint, and the mode of distinguishing between the scrofulous and the venereal case ; that in the latter the popliteal space was never filled up, which it always is in the former.

In considering those numerous affections that might be confounded with either the primary or secondary symptoms of the venereal disease, not alone those I have alluded to, but many others which it would be unnecessary to enumerate in a lecture ; in bringing your

mind to a conclusion as to the real nature of one of these doubtful cases, you will derive but little assistance from the test so frequently employed and relied on formerly ; namely, the exhibition of mercury : it is a medicine that is capable of benefiting numerous diseases, both external and internal, either in alterative or salivating doses, and what is equally well established, will not agree well with the different forms of the venereal disease in certain constitutions. If these symptoms improve or entirely disappear under a mercurial course, you must not on *that* account declare the case to have been venereal, nor if they get worse under it would you believe your patient secure without a searching inquiry into other causes that might obstruct the proper action of the remedy.

From what I have already said, you will understand the necessity, above all things, to inquire what treatment your patient may have been subjected to before you were consulted ; there is nothing confuses the secondary or even primary symptoms of syphilis so much as mercury given injudiciously ; and, unless you are made acquainted with the circumstance of a case, it will be almost impossible to say how much of it may be venereal, how much mercurial, and how much may depend on peculiarities of constitution in the individual. These considerations are not only of great importance in directing our judgment as to the true line of practice to be adopted, but still more, as to the serious responsibility which our opinion carries, as to the moral character of those whom our decision on the matter of fact may affect.

Many practitioners have entertained great apprehensions about the exhibition of mercury to persons conceived to be of a strumous constitution, and have considered therefore the occurrence of syphilis in such persons as a peculiarly unfortunate combination of evils ; what I have myself witnessed of these cases do not by any means corroborate the validity of these apprehensions, which, if, as I suppose, they be groundless in general, only tend to interpose unnecessary restrictions in an important matter of practice. Let me suppose a case : A man comes to you with some of those secondary venereal symptoms that occur in the first order of parts, as the skin or throat : you see, perhaps, a cicatrix or two about his neck or throat which you learned were the result of abscesses that had formed and healed up many years before ; it may be when he was a child ; on inquiry you are told that through that long period of time he had never been troubled with any other swellings or suppurations of any of the lymphatic glands until a little before the coming out of his present venereal symptoms, and now you perceive one or several swollen, or perhaps one containing matter and ready to break or has broken, and is discharging freely : well, suppose this man had taken mercury for his primary sore, the first idea that will be likely to come up is that the affection of the glands is scrofula, induced or developed by the previous use of the mercury ; however, if you seek farther you are told that perhaps six months had elapsed since the man had taken mercury

for his chancre, that it had but very slightly affected his mouth, that he left it off as soon as his sore had healed, or even before, that he had taken but one or two dozen blue pills, and that at the time or since felt nothing unpleasant from their use; that he suspects he must have got a cold two or three weeks ago, for that he had felt pains in his limbs, that he had had a severe headache, and then that the swellings appeared in his neck, and a rash came out all over his body.

Now, what is the real state of a case of this kind? The mercury he had taken months before could have had nothing to do with his present condition, for if it had it should have been induced at an earlier period, but the fever which had preceded the eruption, or the nature of the eruption itself, had excited anew the scrofulous action which had been so long dormant. This interpretation is borne out by circumstances I have more than once observed; namely, that where chancres have been treated on the non-mercurial plan; where a particle of mercury in any form had never been taken by the patient, the very same effects will be produced as often, or more often on the coming out of secondary symptoms, than if mercury had been employed in the first instance. The next proof of this is that mercury, injudiciously employed, will cure both the venereal symptoms and the glandular disease.

So far am I from being afraid of inducing salivation in those complicated cases, that I am on the contrary desirous to bring it on quickly; much more so than I would be eager to do in a common case, and by the practice I have witnessed the most beneficial results. I am not at all disposed to deny that if mercury, when given in these cases, should not exhibit itself in the proper manner in the gums and salivary glands, but that it may, and probably will, exasperate the superinduced scrofulous affection, but from what I have endeavoured to impress on you concerning the salutary action of the drug in any case where salivation may be necessary, you may readily understand that our present case is but another example of a general rule, and not an exception to that rule, as many seem to consider it. What I do then in the instances where the glands of the neck become affected through the venereal stimulus is, when I do not see the mercurial ointment or blue pill affect the mouth quickly, I order calomel with or without opium to be added to the other form, and when the gums become touched, and some ptyalism is produced, the secondary venereal symptoms rapidly recede, the swollen glands grow smaller, and if one of them has opened into an ulcer it takes on a healing disposition, and frequently cicatrizes by the time we judge enough of the medicine has been taken to cure the venereal affection. Should the scrofulous ulcer not heal, however, when the other object is accomplished; should its edges retain their blue colour, and not unite to the bottom of the sore, you know, as in some other cases, that mercury will have done all the good it is likely to do, and that the rest is to be accomplished by tonics, sea-air, and such other

restoratives as would be applicable to unhealing ulcers originally produced by venereal causes, but, from want of proper tone in the system, continue open after the syphilitic poison had been eradicated.

What I have adverted to, you will remember is a case where the glandular affections are obviously induced by the coming out of the secondary venereal symptoms, but there is a difference in the complication, which, although it will not materially alter your practice, will not be attended with the same results from that practice as the former, as far as the scrofulous disease is concerned. The patient, suppose, has been under the full scrofulous action when he contracts the venereal disease; or at least for some time previously to the coming on of his secondary symptoms; he has long been subject to enlargements of the lymphatic glands on every trifling occasion, such as slight colds, or changes of season, or without any obvious reason, or has scrofulous ulcers, one time discharging, then drying up and breaking out again; well, the approach or full development of secondary venereal symptoms may cause no change whatever in those scrofulous matters; it is a thing quite apart from it, instead of being, as in the first case I have been supposing, closely connected with each other as cause and effect; almost identified as one disease. In this second combination, which we may consider as simply accidental, what are we to do? — are we to pause in our endeavours to cure the venereal until we can remove or improve the scrofulous disease? We are to proceed at once with the exhibition of mercury as if we had nothing but the venereal complaints themselves to contend with; we have nothing peculiar to excite our fears of the result; the eruption or sore throat, or whatever else it may be that shows itself as a secondary venereal symptom, will yield as quickly and as certainly as it would in an ordinary simple case; but here your advantage stops, for the scrofulous complaints continue as before, seemingly uninfluenced for better or worse by the syphilitic ones, or by your treatment for the latter. In these cases, as in others, do not forget that you must produce a fair ptyalism, and watch carefully that the mercury takes no wrong turn during the cure, as it is liable to do for a chancre, or inflammation of a serous membrane, or any other thing for which it is ordinarily prescribed; I only wish to convey to you my decided opinion, that the co-existence of scrofula with syphilis offers no reason whatever against the full use of mercury, nor anything in fact peculiar in the mode or form of exhibiting that medicine.

Although nothing is more commonly seen in practice, or better understood by medical men, than the development of scrofula in a patient for the first time from adventitious causes; that the disease which had lain dormant for a number of years, without any suspicion even that there was a predisposition or tendency to it, should exhibit itself on the patient becoming affected with secondary syphilis, or on commencing a course of mercury for that or anything else, has therefore nothing very surprising in it; yet ignorant people who can form

no idea of the animal economy, nor of the effects of disease or medicine on the system (and this class of persons is very large), will take upon themselves to condemn a medical man, and attribute to his want of judgment and skill, effects which it would often be impossible to have foreseen; and which, moreover, even if they were expected to happen, could not always be prevented. If a man with even such striking evidences of a strumous tendency gets the venereal disease, come what will, the treatment of that disease must be entered on, and if any of the complications I have touched on, form, all a medical man can do is to balance his practice with redoubled caution, so as to do the best he can under, often, very perplexing circumstances.

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## LECTURE XLVI.

The venereal disease (*continued*).—Combinations with scrofula (*continued*).—Secondary venereal ulcers—Secondary symptoms in the throat—Ulcerations of the pharynx—Mercurial ulcers of the throat.

THE complications under which the secondary forms of the venereal disease are sometimes seen, and which demand such deliberation and skill in the treatment, as I adverted to, are not the worst of those disagreeable cases. Several diseases of internal organs which are supposed to have their origin in scrofula require great delicacy in deciding what plan is to be adopted, and how that decision is to be acted upon. Let us suppose a man with incipient phthisis gets chancre—if there be any one thing in which medical men are unanimous, it would appear to be a dread of exhibiting mercury in almost any quantity to such a patient—well, I had a case once, of a man who had every appearance that would denote a consumptive habit, who got chancre; he had had two or three attacks of hemoptysis—had a bad cough and thickness of breathing: I partook of the usual fear of giving mercury to such a man, but what was to be done? his venereal disease would not go away of its own accord, and he must eventually get from bad to worse; I considered that a simple chancre was safer to treat than would any secondary form, with the constitutional disturbance it might give rise to,—and so I ordered him the cautious dose of three grains of blue pill every night; he did not come to me for several days afterwards, and then he told me he found himself better in every respect—respiration and all, and asked me should he have his pills renewed; I asked him, in some surprise, if he had taken all I had ordered him the last time I saw him; he answered my question by handing me the empty pill-box, and on looking at the directions on the lid, I found that the person who had made them up had by mistake directed him to take just double the quantity I had ordered; as they had made his

mouth a little sore, and had done him service instead of mischief, I allowed him to continue to take six grains each night, and finally he was cured without any more trouble than a healthier person, and if not with a permanent advantage to his pulmonary complaints, certainly without any aggravation of them.

I would not have you to suppose that complaints of the lungs are to be disregarded on occasions where mercury in salivating doses may be indicated for other complaints — quite the contrary ; there is nothing that can demand more care and caution than such a case. If the pulmonary disease has made such way, that the slightest hectic symptoms are apparent ; if the patient's flesh and strength are greatly reduced ; that he has a flitting unhealthy flush on his cheek ; have nothing to do with mercury with that man ; if you do, you will inevitably hurry him into the last stage of an incurable disease. But if his symptoms fall short of this ; if he is merely disposed, as it were to phthisis, like the case I have mentioned to you, and some others of a similar kind I have seen and treated with similar success, you may venture to give mercury, but with more than ordinary caution ; not so much, however, as to prevent your getting his mouth sore, if you can, as I believe anything short of this will do more harm than good.

I stated to you that the scrofulous disease of the lymphatic glands can be induced by the venereal action, where, perhaps, a particle of mercury had not been given at all, but it is necessary to warn you of the undoubted fact, that the action of mercury itself will sometimes produce the same effect, where there may be no venereal affection, and of course is equally liable to cause it when given for that disease. Now, you must take pains to ascertain the real cause of these glandular swellings during a mercurial course, or you may make a very serious practical blunder ; in the one case the glands were affected before you began the course with him, and improved under it at the same rate as the venereal symptoms : in the other case the glands did not exhibit morbid action, perhaps, until the mercury had affected the mouth, and they got worse in proportion as the salivation increased ; in the first case you may go on steadily as if there was nothing unusual in the case ; but in the latter, if you push on the mercury, if you do not keep it within proper bounds by an occasional brisk purge, &c., you will cause abscesses and ulcerations that may be afterwards very difficult to manage satisfactorily.

In many of those scrofulous cases brought on by the non-mercurial treatment of the venereal disease, particularly where it shows itself in the lymphatic glands, the patient's constitution is so broken down that you can do little for him, and, whether you give mercury or not, the patients will generally die from that teasing and harassing state of the constitution, continually kept up by the frequent returns of the disease ; if the patient is delicate, he is, therefore, better managed with mercury than without it. You must recollect that sometimes, let you treat your patient ever so well, he may come back with returns of the disease, and in such cases I have found that pushing the

mercury too far will do harm instead of good ; when the eruption is pustular in the beginning, the greatest delicacy is often required in the mercurial treatment ; if it is used too freely, the pustules, instead of being benefited, will degenerate either into venereal ecthyma, rupia, or phagedenic ulcers ; *small* doses, steadily and cautiously exhibited, will alone answer in these cases.

I mentioned to you how the secondary venereal ulcer comes on, and that the characters of those ulcers while they differed very much among themselves, differed also in many essential features from the primary ; but that they agreed in this — that either was capable of originating the disease in another person, and that mercury, more or less modified in the mode of administering it, was the proper cure for both. The secondary ulcer, like specific ulcers in general, are of a somewhat circular form ; the centre is of a yellowish unhealthy appearance, and the surface unequal ; after a time, when it begins to improve, the centre of the ulcer assumes a more healthy appearance, and is the first part to be covered over with healthy granulations and skin ; you will often experience some difficulty in keeping down exuberant granulations during the cicatrization, for they form rapidly and require constant attention. Sometimes when the centre is quite healed, a ring of ulceration, covered with that peculiar yellow crusty matter, will continue to creep on, followed by the healing process within, but sometimes a greater or less portion of the ulcerating edge will also heal at last, while the rest remains in the same state, and you have the shape of the ulcer altered according as the remainder of the margin heals, or opens new ground. The healing of those sores does not always seem to depend on the line of treatment pursued either locally or constitutionally, for while they exhibit no indication of a speedy cure to-day, suppose, in three or four days more some of them will be healed, should there be more than one or two ; but if the constitution feels the action of the mercury in a proper manner, no matter what topical measures may have been adopted, their healing is generally rapid. Like a primary sore, this secondary one will heal before the patient is entirely free from the venereal taint, and if deceived in this matter by the cicatrizing of the ulcers, you leave off the mercury too soon, a number of pustules will form round the cicatrix, and those will ulcerate, and so the former process be renewed. Sometimes it is in the centre of the cicatrix that ulceration recommences, and sometimes it is not a breaking out again of the old sores, but a fresh crop beginning and running the same course as the preceding.

There is certainly no form of the venereal disease that requires more care in the exhibition of mercury, and more watching of every slight change that may exhibit itself during the treatment, than such a case as this. I have known the most harassing and perplexing relapses take place month after month — aye, for two or three years in some instances, from insufficient or otherwise irregular courses of mercury. There are two circumstances chiefly that may deceive an inexperienced person, and so give rise to these irregularities in the

course that should be pursued ; one is the healing up of the ulcer or ulcers before the system is quite freed from the venereal disease, and so the mercury be laid aside too soon ; the other is an occurrence I wish particularly to impress on your memory — that the local evidences of the existence of the disease may not only not immediately begin to improve on the administration of mercury, but the very contrary, and when after some days things seem to get worse instead of better, and that from timidity, or some theoretic notion rather than actual experience, the mercury is hastily laid aside, the disease will to a certainty recur. The feverish state of the system, arising at first from the mercury, or one of many sources of disturbance of a general nature, may cause this apparently unfavourable effect of the medicine for the first week or so, but the aspect of things will be found to alter for the better after this, when the resolution is taken to push the mercury to its proper extent, and that the mouth becomes fairly affected. I own that it does require considerable firmness of purpose to persevere, to the necessary extent, with mercury in many of those cases ; and I admit it also demands great caution and care, but I never knew the steady exhibition of mercury do anything like the harm in the most unpromising of them, as the timid half measures, too often pursued towards even those cases where there was no apparent ground at all for apprehension.

It is not in the *beginning* of a mercurial course that we should hold our hand on the first glimpse of an unfavourable change, for we can conceive causes independently of the specific action of the medicine to work those changes, but if the patient is fairly salivated, and things improving, and that after some time, and while the mercurial influence is fully in operation, a change for the worse takes place, we should then suspend it ; the patient has either taken enough of it or we may be able to detect some cause, perhaps of a trilling and temporary nature, that had, for the time, caused the mercury to disagree, and by the removal of which the course can be continued to the necessary extent, and the cure be completed finally.

*Secondary symptoms in the throat.* — The next secondary symptoms of the venereal disease that we have to consider are those that have their seat in the throat and mouth, and you will find that venereal ulcers in the throat present as much variety in their appearance as the eruptions did. There is one ulcer of the tonsils which is the most common and certain of those of venereal origin, which has been accurately described by Hunter as the true venereal ulcer. It is one which seems as if a part of the tonsil was dug out ; its edges are defined, although the outline is irregular ; there is a yellowish thick matter adhering to it firmly, so that gargling will not wash it off, and it is surrounded by an erysipelatous kind of inflammation. Now, this is certainly the character of one form of venereal ulcer of the tonsil, but from what Mr. Hunter wrote on the subject, you would suppose that the venereal disease presents itself in no other form in this part. The first indication of the tonsil becoming affected is a little pain in swallowing, particularly when there is but little to

be passed down, as saliva. Sometimes, instead of this kind of ulcer, you see a whitish kind, the appearance of which I can only describe to you by saying it looks exactly as if a snail had crept over it, or as if it was painted. I must admit I have often been in great doubt as to how much this peculiar appearance may be owing to a previous use of mercury, and how much to syphilis. You sometimes see it without what you could call a decided ulceration, but rather a morbid alteration of the mucous membrane of the part, and when this is the case, I am disposed to think it rather owing to mercury, but matters are not so clear when you see a true ulcerated spot in the centre of this pearly looking patch, and I would certainly prefer treating it as if certainly venereal, by the exhibition of mercury; such ulcers have done extremely well under its judicious administration. That spontaneous ulceration in the throat of young people, which is considered by some scrofulous, will leave behind it often an appearance a good deal resembling what I have just described.

*Ulcers of the pharynx.* — The pharynx is often the seat of secondary venereal ulcers. Now, sometimes you will see the secondary venereal ulcer at the back of the pharynx at once, with a very ragged, uneven edge, having very much the appearance of an ulcer of the phagedenic kind — but this description of an ulcer is not confined to the locality I have mentioned, for one of a very similar appearance is occasionally witnessed in the velum palati. Now, you also will sometimes see, on the back part of the pharynx, an ulcer exactly resembling Hunter's venereal ulcer of the tonsils, in every essential particular. Except where the venereal ulcers of the throat have been badly treated, or that the patient has very much neglected himself, sloughing is of very unfrequent occurrence; but occasionally sloughs do form on their surface, and now and then, from the irregular and improper employment of mercury for a venereal ulcer in the throat, it at last assumes one of the most frightful conditions of sloughing and ulceration that you can conceive — the tonsils, pillars of the fauces, velum, pharynx, are all mixed up in a horrible mass of disease: the patient can neither lie down nor rest long in any position; viscid saliva is drawn away in ropes; he can swallow hardly anything, and whatever he does get down gives him great pain, and a portion frequently regurgitates through the nose; his constitution is, as might be expected, completely shattered — in fact, he presents the greatest picture of wretchedness, that could be witnessed in any case. Well, now this is a sort of case in which I have ventured to give mercury, and although the improvement is never rapid, although the patient seems to be long lingering between life and death, mercury has proved itself of the most essential service. But recollect that you must approach it with great caution and with very small doses, with a reasonable interval between each; I have begun with two or three grains of blue pill every night, and as the constitutional and local changes for the better advanced, I have been enabled to raise the quantity to four, five, or six grains. It will be necessary to join sarsaparilla, bark, or the mineral acids in general

with the mercurial treatment, and to support the constitution with nourishing diet, &c. Slighter cases of sloughing are of course attended with proportionately slighter constitutional disturbance, and less difficulty in their treatment; but they are often accompanied, notwithstanding, with severe pain, and are commonly accompanied with a profuse salivation, although no mercury, in any shape, has been given. All the preparations of mercury will cure these ulcers, but if you leave off the mercury on the disappearance of the ulcer, you have not cured the disease, and you will find it return; in the sloughy state of the ulcer you are to apply the strong mineral acids, as you would to similar ulcers in other parts, and in three days after you make the application, your patient will tell you he is almost quite well, and is able to swallow without inconvenience. Sometimes this sloughing ulcer comes on where mercury has been given, and sometimes where it has not, but in either case mercury can do such an ulcer no good.

Suppose a patient comes to you who has had a venereal sore throat, and who had taken mercury with but little effect; he speaks with a snuffle, feel pain in swallowing, &c.; you examine his throat, and you see nothing particular on either the tonsil, velum, or pharynx, but on examining him more closely, you observe the velum thickened, and a little more red than usual on the thickened part; when this is the case you may be sure there is an ulcer on the posterior surface of the velum; you can make yourself certain of the fact by passing a bit of lint on the point of a bent probe to the situation of the suspected ulcer, and by rubbing it to the part you will detect marks of the ulcerous discharge on withdrawing it: now, if left without the adoption of any remedial measure, what will be the end of this? Why, this ulcer will eat through the thickness of the velum by the sloughing or phagedenic process. When you see this thickening of the velum, always tell your patient what is likely to be the consequence, as it may end badly; sometimes you may be able to see this ulcer, and when you can, apply one of the mineral acids, or a solution of nitrate of silver, in the proportion of a scruple of the nitrate to an ounce of water, to it, and you may be able by this to stop its progress; but if you do not, it makes its way through the velum, assuming the shape either of a fissure or a round hole — in the first case it will never heal, but if it be a circular hole, even if it should be as large as a shilling, I would not despair of its closing. I have been surprised at seeing one of that size gradually healing contrary to every preconceived notion I had formed of the healing process — the edges of this hole were covered with cuticle, yet every day it contracted itself, until at last it would not admit the point of a probe, and finally closed altogether. When the ulcer has eaten through the velum, the patient is unable to drink without part of what he drinks coming through his nose.

Sometimes the patient complains of a constant and severe pain in his throat, increased on attempting to swallow; we examine and are unable to detect even the signs of thickening or inflammation

anywhere; desire the patient to inspire strongly, and you may be able to see the edge of an ulcer high up in the back of the pharynx; you can then bring it better into view by depressing the tongue with a spatula and raising the velum with a probe; it is a foul, circular, excavated ulcer, with but little inflammation extending beyond its margin. On account of the severity of accompanying symptoms, as well as on account of the danger of the ulcer spreading and involving important parts in its neighbourhood, you cannot wait for the slow and uncertain action of medicines, you must use topical means likewise; you wrap some lint round the end of an aneurismal needle, which, from its curve, is the most convenient instrument for the purpose, and with it you must immediately smear the whole surface of the ulcer with the muriate of antimony, the effects of which, although severe at first, as far as pain is concerned, will speedily be soothing, and leave him without pain or difficulty of swallowing. The ulcer in the back of the pharynx may not be at first observed from its lying very low in the part—here there is danger of its extending to the larynx—treat it also with the mineral acids or the muriate of antimony.

These venereal ulcers at the back of the pharynx must be carefully distinguished from an appearance in the throat in persons who have never had any venereal affection whatever, and which is not uncommon; it is this—there is an appearance along the part as if covered with a yellowish, thin scale, of some hardness, occasionally but not very tenaciously attached to the mucous membrane on which it lies; if a portion of this hardened mucus be removed with a probe or in the act of deglutition, the membrane under it is not found really ulcerated—at least not always so, but merely somewhat altered in appearance from its natural healthy condition. This condition of the pharynx may continue without any apparent alteration of its characters, or any further mischief than the trifling uneasiness it now and then gives the patient, particularly if he exposes himself to cold, or suffers his digestive organs to get out of order. Change of air and habits will often remove this affection, but seldom for a permanence; as to medicine, I have not found anything do much service to it. Stimulant or astringent gargles sometimes gives great relief.

In the venereal ulcer so low down in the pharynx as to make it not readily perceptible, there is generally an accompanying symptom that will induce you to make a careful search for an ulcer in this part—the patient experiences a difficulty in swallowing any dry morsel, such as dry bread; it will stop about where the pharynx and œsophagus join, and all the efforts of deglutition are unavailing to get it further, until he takes a sup of something liquid to wash it down.

Venereal ulcers in the throat, if not well treated, may get apparently well, but are liable to a relapse, and when they do return it is ten to one they will have totally different characters on their second appearance to what they had at first; they will now be superficial,

of a pale or whitish colour, with a redness, and more or less thickening of the parts about it.

There is certainly such a thing as a mercurial sore throat, and besides that it does not present the characters of a true venereal ulcer; it is known by its coming on while the patient is under the influence of mercury, and when the constitution is breaking down with the use of the medicine; here, of course, you must stop the mercury at once; you must take everything mercurial from about him; if in hospital, he must be removed to a ward where no mercury is used, and he must be put on sarsaparilla, &c. I shall have to say more on these mercurial appearances in the throat, but there is one remarkable fact I should wish to mention here—that it is only when mercury is exhibited for the venereal disease that they are observed to occur; there is no other medicine so extensively and beneficially used for the cure of diseases as mercury—no medicine of such general utility—none of which the peculiar action is more apparent on the system, as well as the disease, whatever it may be for which it is given, and yet in no other case but the venereal disease do these local mercurial actions follow its use.

When a venereal ulcer in the throat takes on the phagedenic character, or the less frequent process of sloughing, it must be met early, or it will cause the greatest mischief—it will run away with the epiglottis; nor is this all—for when it once reaches the larynx, it always induces a disease in the lungs, from which the patient never escapes; the longest reprieve such a man will get is five or six months.

Venereal ulcers of the throat may cause death in a sudden and unexpected manner; suppose one of them to take on the sloughing process, the mortification may extend to parts not originally engaged, and a sudden and fatal hemorrhage be the first announcement that the carotid artery has suffered from its ravages. Suppose, instead of sloughing, it takes on the phagedenic character, it will creep on from one part to another, until it reaches, perhaps, the larynx; it may attack the crico-arytenoid articulation, destroying the connections between the two cartilages, and suddenly on making an inspiration the arytenoid becomes detached, falls on the rima glottidis, and causes instant suffocation. The same thing may happen with the epiglottis.

Several more or less unpleasant sequelæ may be left by venereal ulcers of the throat, no matter how they are treated, but there is one singular and fortunately unfrequent one that I have twice or three times witnessed, namely, a closure of the passage through the nose from the pharynx, owing to adhesions, and to the contractions of the cicatrices of the previous ulcers. I do not know how to remedy this unfortunate event.

Another appearance which is left in the throat after mercury had been used for either the primary or secondary form of the venereal disease, is, a whitening of the surface of the mucous membrane of the velum, cheeks, or other parts of the fauces; it has often a

wrinkled appearance, but is sometimes smooth, and very like the condition of the throat I before mentioned as being sometimes with, and sometimes without the accompaniment of ulceration. I draw your attention to this, on account of a remarkable affection invariably attendant on it, as far as my observation will allow me to speak positively on the subject; it is a superficial ulceration about the anus, sometimes, but not necessarily, accompanied with condylomata. Mercury in full doses has no effect in removing these appearances, but if the general health requires it, alterative doses will be of service. They are, under any treatment that I have employed, very tedious in getting well, and, I believe, will disappear of their own accord as the patient's constitution is improved by any means.

It would occupy too much of your time to bring before you in detail a variety of other appearances produced in the throat by the venereal disease; in fact, there are many and striking differences to be observed in them; but in practice you will be enabled to satisfy yourself that many of those varieties can be considered as less belonging to the venereal disease, than to differences in the constitution of individuals, and that many of those last are owing to previous courses of mercury. I have, perhaps, said enough, however, to guide you in your investigations, and for the rest, your observations carefully made will soon make you familiar with them. We shall now go to secondary venereal symptoms in other situations.

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## LECTURE XLVII.

The venereal disease (*continued*).—Secondary symptoms in the nose—Diseases resembling venereal ozæna—Secondary symptoms in the tongue—Venereal ulcers of the lip—Venereal iritis.

SECONDARY SYMPTOMS IN THE NOSE. — There is no situation in which secondary venereal complaints show themselves, where the symptoms are so little to be relied on with certainty as in the nose. Besides that we are often unable to *see* the actual condition of the parts involved, and of course lose one great means of distinction — there is this also to obscure the judgment, that the organ is subject to other diseases that, under circumstances, greatly resemble those of venereal origin. All parts of the nose do not appear equally liable to secondary syphilis; — now, for instance, I never in the whole course of my experience saw a venereal ulcer of the septum nasi.

There are several ways in which venereal ozæna may commence. A man who had been some time the subject of the disease in his throat begins to get, what he calls, a stuffing in his nose; he takes little notice of this for a time, until he becomes greatly annoyed by the formation of hard crusts which he finds difficult to get away, but when at length they are discharged, the respiration through the nose becomes free until the crusts form and accumulate again; this may

be in half an hour, or three or four hours. The patient next experiences an unpleasant odour, that gradually becomes intolerably fœtid, and is attended by a fœtid discharge from the anterior nares. After some time crumbs of bone are discharged into the pocket-handkerchief, and at last, perhaps, a piece as large as one of the spongy bones. Now, in this case the venereal disease has extended from the throat into the nose, and where you have the concomitant disease to account for the symptoms in the nose, your diagnosis is not very difficult.

There is another way for the nose to be attacked with secondary syphilis—a venereal eruption, suppose, comes out on a man's face,—one or two pimples of this eruption get on the *alæ nasi*, generally in the angle between the cartilage and the integuments of the cheek—these degenerate into ulcers, and too often assume the phagedenic character, and eat deeply or quite through the cartilage on which it is situated, and extends itself farther and farther, destroying everything in its progress to a greater or less extent by ulceration or sloughing. Sometimes the venereal ulcer of the lip, which we shall speak of again, extends upwards to the nose, and soon makes great ravages in the integuments and cartilages. Well, in both these ways for the nose to become affected, we have other secondary venereal symptoms present to enlighten us as to the probable nature of the disease in the nose itself. When the cartilages of the nose become affected in this way, you have as bad and intractable a description of ulcer as ever you saw in your life, from any disease. Applications that would readily heal similar ulcers in other situations, totally fail in arresting the destructive progress of most of these that you may have to treat here. These affections of the nose come on, or have their origin, either in instances where the patient has neglected himself, and taken no mercury at all, or, when injudiciously treated, he has taken too much of it.

Now, there is another way in which you may observe the nose to become affected, in which you will have no inconsiderable difficulty in bringing your mind to a conclusion as to the actual cause or nature of the complaint. A man, we will say, has had repeated attacks of venereal eruptions—he has taken mercury every time they appeared—it may be little or much, or it may be that he has been only put on sarsaparilla, &c.,—well, this man begins to get severe pains in his head, particularly about the forehead and nose—but he has perhaps taken so much mercury that you do not know what to do with him;—you have a good deal of reason to apprehend that if you give *much* mercury his constitution will break down under it, and it is equally reasonable to suppose that a *little* will be of scarcely any use to him—well, while you are hesitating what to propose, the disease goes on, and if left to himself, or only treated by general measures to prepare him for more definite ones, first the spongy bones are thrown off, next the strong bones of the nose—the *ossa nasi* themselves will be attacked and come away; the front of the nose falls in, and a permanent and very ugly deformity remains for

life. Now, sometimes the progress of this case can be arrested by mercury, but sometimes nothing will stop it, nor seem to have any effect on it whatever.

There is one affection of the nose that, by a person not well acquainted with these things, might easily enough be mistaken for this venereal case, the nature of which, I confess, I do not understand, but which I can safely say has no connection with secondary syphilis, for I have often seen it in those that I am positive never had a venereal complaint; — the symptoms are those — A man comes to you and complains of a soreness in his nose, and on examination, you find in the septum nasi a circular hole, with ulcerated edges; it is extremely slow in its progress, so slow, indeed, that I have known it to remain stationary for years, without any bad consequences resulting from it. Perhaps when the patient first seeks advice for this affection, you will find the hole large enough to admit a swan's quill through it, which must, from the sluggish nature of the disease, have taken a considerable time to have arrived to that state, and yet the patient was hardly conscious of anything wrong going on in the part.

There are some other diseases of the nose, which, to cloak our ignorance of their exact nature, are commonly called scrofulous, and which are very likely to be confounded with venereal ozena; the best thing can be done for these is to have them washed frequently with lime-water, — send the patients to the sea-side, and if the weather permits, make them bathe in the sea — this is the best treatment I know of, but do what you will with them, you will find them very intractable.

There is another description of ulcer that attacks the integuments and cartilages of the nose, and extends its ravages downwards to the upper lip; it mostly begins as a kind of tubercle surrounded with a deep red inflammation extending to some distance beyond it; this soon degenerates into an ulcer which spreads slowly, but destructively, until often it does not leave a vestige of the alæ or cartilaginous septum of the nose behind. The lip remains in a thickened state, covered with cicatrices, and communicating a peculiar and disagreeable character to the mouth along with the disfigurement which the loss of the nose occasions. This is an extremely formidable and intractable disease. It will sometimes be arrested in its progress for a while, even without surgical care, and again begin anew. This ulcer is certainly not syphilis, but might be confounded with it.

The treatment to be adopted for those venereal affections of the nose is, if the alæ nasi be in a state of ulceration, to apply to the edges of the ulcers the strong mineral acids; you will cause the calomel and lime-water lotion to be injected into the nostrils, and if you can get the patient to bear them, employ mercurial fumigations;\* but do not

\* Cinnabar would be, in this case particularly, a bad preparation to employ for fumigations, I should think, on account of some disengagement of sulphurous acid, Mercury with chalk, or the protoxide of the metal simply, which is so easily made, would probably answer for fumigations better. — *Ed. of Lect.*

be too sure of success from whatever treatment you adopt in these cases, nor too ready to give your patient hopes which you may be unable to realize, for do what you will, the disease in some instances will not be stopped until the bones of the nose come away. After every trace of what you could legitimately call venereal has been removed, the discharge from the nose may continue unabated. When we see this we should of course stop any further use of mercury, we should send the patient to the sea-side, make use of restoratives, both medicinal and dietetic, and take the chance of the disease at length becoming cured, or wearing itself out with as little permanent injury as possible.

After succeeding in arresting the progress of disease in one of those cases, and that you are beginning to congratulate yourself on the fortunate issue of your exertions, the patient will begin perhaps to complain of a soreness of the palate — you find a spot in the palatine arch very painful to the touch, at last an opening forms in the partition between the mouth and nose, and the opening thus formed will never heal. Now, the voice of the patient will of course be disagreeably changed; and a part of whatever he tries to swallow will get from one cavity into the other, but things are not quite as bad as they seem; it is true you can never get the aperture to fill up naturally, but this is of no great consequence, as every inconvenience caused by its formation can be obviated by a mechanical contrivance. A plate of gold or silver laid up against the opening, from the mouth, and retained there by a spring, will answer every purpose of the natural palate. Some of these venereal affections of the nose extend themselves occasionally to the lachrymal sac and duct, and cause diseases of those passages, not always very distinguishable from those of a different origin, but the presence of other venereal symptoms will serve to distinguish them, and the proper treatment of those will in general cure the lachrymal disease with the aid of such topical applications as the circumstances of the case may require.

The venereal ozæna might sometimes be mistaken for the commencement of a polypus, by the stuffing of the nose and the discharge; but a very little trouble in examination and inquiry will soon make the distinction plain enough; the discharge from the venereal affection is very fetid, and the difficulty of respiring through the nose proceeds from the formation of crusts, which, as they come away, relieve this symptom for a short time, until they are again renewed.

*Secondary symptoms in the mouth.* — The appearances of secondary syphilis in the mouth and tongue are not without some variety. We sometimes meet an ulcer about the centre of the tongue near its base, which presents a deep and foul aspect, extremely painful to the touch, so much so as to hardly bear the slightest pressure; sometimes it is near the connection of the palatine arch, but although its surface looks discoloured and angry, it is never what you would call a sloughing ulcer. Well, independently of what may be necessary besides, your attention must be directed in the first instance to de-

stroy its extreme sensibility by touching it every day, or every other day, with butter of antimony or nitrate of silver. There is another venereal ulcer which always comes on the *side* of the tongue, and which often is unaccompanied with any other secondary venereal symptom, and therefore requires your particular attention. It looks as if a piece was dug out of the part, and is very callous to the touch; it is covered with a dirty-yellowish discharge, and, from being often unaccompanied with any other secondary venereal symptom, may be confounded with a cancerous ulcer of the part; the mistake is the more liable to occur as a lymphatic gland below the lower jaw often enlarges from this ulcer, and its exact distinctive characters are not, by any means, so well-defined and regular as to give a certainty of its nature to the mind of an examiner. I have no doubt of this being a secondary venereal ulcer, and yet the distinction between it and cancer must often be made from events and collateral evidences than from its pathological characters. Both kinds of ulcer are hard to the feel, but I think no other ulcer possesses the stony hardness that a cancerous one does; both vary exceedingly in their aspects at different times, and under different circumstances; even the age of the patient will not assist us much, for we see a cancered tongue now and then at a period of life not unusual to find venereal symptoms at all. I confess I am unable to propose a better diagnosis than what the test of inducing a quick mercurial ptyalism may supply, which, while it can do little harm to the cancer, will so quickly improve the venereal as to remove every remaining doubt. Of course you will not omit making every necessary inquiry into the history of such a case to strengthen the probabilities of its source. There is one description of cancer of the tongue that can never be confounded with any form of syphilis in that organ; it is a rather healthy-looking ulcer surrounded by a callos ring, slightly raised above the surface; whenever you meet this you need not try mercury, — it is certainly cancer.

I have mentioned that this ulcer on the side or anterior edge of the tongue is mostly unaccompanied with any other secondary venereal symptom; but when you have any other, as an eruption, the ulcer is generally seated on the *dorsum* of the tongue, and here it may be overlooked at first, as it is seated very far back; it is very irritable, and its discovery may be owing to the severe pain you give by pressing on it with a spatula when searching for an ulcer in the throat. The venereal ulcer at the tip of the tongue has little peculiar in it, except more swelling about it, and is often covered with a thin slough.

There is another appearance on the dorsum of the tongue caused by the venereal disease, which possesses peculiar characters; I cannot call it an ulcer; it is just a red spot or patch; it is quite smooth, as if the tongue was deprived of its papillæ, and is surrounded by a narrow edge of ulceration; it is sometimes single, and sometimes there are three or four such spots; now, you may or may not have other secondary symptoms present with this affection of the tongue,

but it is certainly venereal, and will require mercury for its treatment. There is another venereal appearance of the tongue; when the patient protrudes it from his mouth it looks indented on the side; just as the part looks when become affected by a carious tooth, indented and perhaps slightly ulcerated; as we have no characters to distinguish which of the causes a case may be owing to, it is fortunate that other secondary symptoms always attends it, when it is itself venereal; at least I have never seen it unaccompanied by a venereal eruption. The simple case from bad teeth is readily cured by lunar caustic. When the venereal ulcer of the tongue assumes the appearance of a *fissure* traversing its edge, the appearance that would enable you to decide on its being venereal is its being encircled by a line of a whitish colour consisting of a chain of specks of superficial ulceration, and the edges of the fissure itself being very hard.

Now, you must remember that many people are extremely subject to fissures, ulcerations, and other conditions of the tongue from some derangement of the alimentary organs; that the variety in their appearances is very great, and renders their diagnosis from more serious diseases proportionately difficult; that where those cachectic affections of the tongue can be fairly traced to their true cause, attention to the digestive organs, and in very many instances, *alterative* doses of mercury, such as Plummer's pill every night, with some bitter and gently laxative medicine in the morning, or some other treatment proper to particular cases, will remove those ulcers; but should they be venereal, mercury as a sialogogue will alone cure them. Among these I have mentioned there are very few that can be at once pronounced venereal, unless some other symptoms are present that cannot be mistaken for anything but tokens of secondary syphilis. In all those cases therefore you must examine carefully into the general condition of the patient and the history of his complaints.

The causes that produce these affections of the tongue also sometimes give rise to ulcers of the gums — you will find them spongy, with here and there something like a fungous ulcer — but this is not venereal; the true syphilitic ulcer of the gum is exactly like a secondary venereal ulcer anywhere else, and will demand the same treatment.

Venereal ulcers, both primary and secondary, are found on the lip, and it is among the first situations in which the latter class are found; it is a remarkable fact that it is the *upper* lip that is invariably the seat of secondary venereal ulcer; it may be in any part of the lip, near the middle line, or near the angle of the mouth; but it is never observed to commence in the lower lip; cancer, on the other hand, when it comes on the mouth, as constantly invades the lower lip and not the upper, so that this circumstance alone will distinguish the cases. It is from the secondary venereal ulcer of the lip that we sometimes witness the fact I before asserted; namely, that let people say what they will, beyond a doubt a secondary ulcer

will produce a primary venereal one in another person.\* Either the cancerous or venereal ulcer of the lips may extend from where they first began, so as to occupy a good part of one side of the mouth, and when in this state might be mistaken, the one for the other;—what you have to do in a doubtful case is to make a trial of mercury in a moderate way—this can do the cancer, if it should happen to be one, no harm, although of course it will do it no good, but if it be venereal, the improvement in it will be very rapid.

When the venereal ulcer takes possession of the centre of the lip it has often a pretty smooth surface, is of a yellowish colour, and soon attains a considerable size; I believe this is generally a primary symptom, while the ulcer which appears at the angle of the mouth is perhaps more generally a secondary one; the latter is sometimes very ragged and unequal on its surface and in its outline. There is an affection of the lip to which some people are very subject in cold weather which might be confounded with a venereal ulcer of the part; it will yield to topical treatment when the venereal ulcer will not. There may at first be no other syphilitic symptoms present with the secondary venereal ulcer of the lip, but it will often happen that if you apply some strong caustic to the ulcer, with the view of causing it to heal from doubts on your mind as to its real nature, a full crop of eruption may unexpectedly come out and clear up every thing.

*Iritis.*—Although the eye ranks among the first order of parts affected with secondary syphilis, it will sometimes be found to exhibit the disease among those of the second order. What is called venereal iritis might perhaps be styled with as much propriety venereal scleritis, for it is not to be supposed that the inflammation is confined to the iris alone: and indeed, we have evidence that other structures of the organ are also engaged. If the sclerotic coat be one of these, it would naturally be expected that it should, sometimes at least, exhibit the disease about the period the other fibrous organs do. Some people are of opinion that this affection should rather be considered an effect of mercury than anything else, but why I cannot conceive. It is very true that iritis sometimes begins in the middle of a course of mercury given for the primary affection, or just after the course which had been deemed sufficient for the cure of the chancre—but recollect this, the venereal iritis has appeared in cases where no mercury had been given, or where the patient had been treated on the non-mercurial plan; and, on the other hand, I had occasion to bring under your notice other instances where a succession of secondary symptoms followed in the same way, even when the salivation was profuse, in consequence of the

\* I have a note of several of these venereal ulcers on the lip; the causes assigned for the probable contamination were—using another's tooth-brush, drinking out of another's glass, kissing, smoking the tobacco-pipe of another person, &c., but in no instance did the person contaminated notice anything about the mouth of the person supposed to have communicated the disease, although I was particular in making the inquiry.—*Ed. of Lect.*

mercury having been exhibited indiscreetly, and had consequently disagreed with the constitution, and I can see no reason why iritis should be an exception.

Mr. Hunter doubted that the venereal disease ever exhibited itself in the eye in this form, although admitting many such cases were cured with mercury; its being curable by the same medicine which cures the primary and other secondary forms of syphilis, would certainly be insufficient as an argument, but the arguments he uses on the other side, appear to me equally weak; he says that the pain in iritis is more severe than it is in venereal inflammation; but if he had made sufficient observations he would no doubt have recognised cases where the pain was *not* very severe, and at all events the pain of any kind of inflammation will as much depend on general constitutional and some local causes, as on the nature of the inflammation itself. The frequency with which venereal eruptions, sore throat, &c., co-exist with the venereal ophthalmia, is certainly a strong presumptive evidence that they have the same origin if there was no other.

We rarely see this affection in both eyes at once — sometimes, however, we do, but in such cases I believe we can generally trace it to something wrong in the treatment, and the inflammation is not equally severe in both. The first thing the patient sometimes remarks, on the coming on of the complaint, is a haziness between him and objects — and this not unfrequently occurs before much if any pain is felt in the organ or neighbourhood; very soon, however, the eye becomes watery and somewhat painful, particularly in a strong light, but I have seen cases, and not very mild looking ones either, where light produced but little uneasiness. A circle of short straight blood-vessels may be observed round the cornea, not extending on it, but running in a direction towards its centre, and sometimes at the early period the conjunctiva is very vascular, that particularly covering the ball of the eye, for you seldom see that lining the eyelids by any means so much engaged in the inflammation, but the first set of vessels, those that form a ring round the cornea, is evidently but little connected with that membrane. Too much stress seems to be laid on the colour of these vessels as forming a distinctive mark between venereal inflammation and others of a different nature — there is a better one, and I believe the only one to be relied on for diagnosis — namely, the history of the case, or the presence of some other venereal symptom, as eruptions — generally I think of the papular or scaly form. The conjunctiva, which is manifestly not the part chiefly affected throughout the progress of this affection, is nevertheless a little tumefied, but it is more owing to a serous fluid thrown out under it, or in its substance; but it has not that fungous-like condition or thickening, nor does it secrete pus, as happens in some other forms of severe ophthalmia. Sometimes you see it raised here and there into a little vesicle. If you press on the eyeball with the finger, you give pain shooting through the eye, or the forehead, or temple. There is a peculiar muddiness

and dulness in the look of the eye, and vision soon becomes much impaired from the opaque condition of the humours, from the closure of the pupils, &c. You will sometimes see a spot of adhesive lymph-like matter on the iris itself, which, becoming detached, falls into the anterior chamber of the eye, and will remain there for some time unchanged in figure in the aqueous humour, and sometimes the humours seem reddened by a little blood.

From the very beginning the iris exhibits great sluggishness of motion, is finally insensible to the stimulus of light, and the pupil daily gets smaller. There seems to be a much greater disposition in the iris engaged in secondary syphilis to form coagulable lymph, and to contract adhesions, than in similar affections of the eye from any other cause, and hence it is that, unless means are taken to prevent it, the edge of the pupil changes its even circular shape, and becomes oval or square, or contracted into some other irregular figure, while some portion remains regular. As some writers have considered this irregularity of the pupil of importance, as a means of distinguishing the venereal iritis from others, you should bear in mind that you cannot always distinguish this circumstance at once by looking at the eye, and to make it apparent you will find it necessary to cause a dilatation of the pupil by means of belladonna; if there be adhesions it will dilate irregularly, the adherent parts retaining their position. The disease acquires these characters gradually, and they may not fully show themselves until about the middle or end of the third week from the first time the patient's attention is drawn to the organ. When the iris becomes adherent to the capsule of the lens, it frequently causes opacity of that membrane, and the subsequent treatment may fail to remove this opacity when the other symptoms have subsided, and yet the patient's vision may not be so impaired as you might suspect. The iris undergoes some change of colour, and often a speck or two of cohesive lymphopurulent matter forms on its disk, or at the pupillary margin.

If the disease is let to take its course, the sight of the eye is totally and permanently lost, either by the formation of abscesses, the closed and adherent pupil, or opacity of the lens and its capsule. The simple obliteration of the pupil is sometimes remedied by the operation for an artificial one, but it often fails.

The progress of these symptoms are, as I mentioned before, sometimes accompanied with only very trifling disturbance, but sometimes the patient suffers extremely severe pain in the eyeball, and even the whole side of the face, and in these cases there is generally a smart attack of fever. After the disease has continued in one eye for some time unabated, it may begin to grow better while the other eye begins to inflame, and will run perhaps the same course as the first, but very often only one of the eyes suffers. This disease has not been observed to arise from the actual contact of venereal matter conveyed accidentally to the surface of the organ; — it is a true constitutional or secondary affection.

## LECTURE XLVIII.

The venereal disease (*continued*)—Iritis (*continued*)—Venereal sarcoma of the testicle—Nodes.

Now, as to the treatment of venereal ophthalmia, the only thing you can place the least reliance on is mercury; the common antiphlogistic remedies so useful in other inflammations of the eye—indeed so indispensable—are here unavailing; but I cannot agree in the opinion of some writers on the subject, that you can hardly throw in mercury too quickly, or get the system affected too soon: for, as we find in other forms of the disease, too much haste will often retard instead of accelerating, the cure, and even do serious mischief. The rapid introduction of the medicine itself, in some constitutions, and without reference to the case for which it may be administered, may give rise to the most serious and even fatal consequences. There is not in the case we are considering any such urgency; at least none that would call on us to run the risks with which we might not afterwards be able to cope successfully. We are never so sure of a permanent cure from a profuse and sudden salivation as we are from a moderate and steady one, nor is there anything in the nature of iritis to make it an exception to this general rule. This is one of the forms of syphilis in which mercury is usually given internally in preference to frictions, but I am not sure whether there be much reason for choosing one instead of the other, as a similar effect is intended to be produced on the system in all. When iritis attacks a man during or after a course of medicine, it would appear that something has been wrong in the mode of exhibiting the mercury, or some unfavourable change has taken place in the constitution from some cause or other, and in such cases you will find that continuing measures to improve the general condition generally, will be productive of the best effects; when you see the affection of the eye remain stationary, with a full mercurial action, one of the best things you can give is bark,—indeed you may be surprised at the suddenness with which an improvement takes place in the symptoms, and the patient finally gets quite well, under the restorative powers of this medicine. When that stage of iritis approaches you are advised to keep the pupil dilated by means of belladonna, and it would appear no permanent mischief results from the practice; certainly when the iris does become adherent to the parts behind it, it is a very serious circumstance to the patient, but often this cannot be avoided by any precaution.

An ulcer sometimes forms in the conjunctiva lining one of the eyelids, during the prevalence of other secondary symptoms; it is sometimes much more extensive than you would at first suppose. Besides the constitutional treatment, you should stimulate the surface of this ulcer with nitrate of silver, which will prevent its spreading and cause it to heal. In considering the different forms of the

venereal disease in its primary state, and when affecting the first order of parts in its secondary stage, I had more than once to caution you against relying with too implicit a faith on any one symptom as a certain proof of syphilis, and if that was necessary as far as we have as yet gone, it will be still more so in pronouncing on any feature of the disease occurring in the second order of parts. These are bones, and joints, tendons, fasciæ, ligaments, &c., to which, in my opinion, the testicle should be added. As to the venereal affection of the eye, it may, as I said before, come on when either the first or second order of parts are engaged.

*Venereal swelled testicle.* — The fact of secondary syphilis manifesting itself in a swelling of the testicle, although now hardly doubted by any experienced surgeon, was not admitted by Hunter, even while admitting it as one of the not unfrequent consequences of gonorrhœa, which he considered but as a modification of syphilis, and analogous to chancre in its source and consequences. When speaking of hernia humoralis, you may recollect I laid down no other rules for its treatment but what would be applicable to other cases of simple glandular acute inflammation, and that it was totally unnecessary to employ mercury for its cure in any stage, except perhaps an alterative course to stimulate the absorbents to remove the trifling swelling and hardness that often remains, in a chronic form, after the cure of the case might be said to be effected. But nothing is more common than light courses of mercury for the purpose, in cases which have nothing whatever to do with the venereal disease at all, and when exhibited for such a design would in general be wholly insufficient in quantity or effect to cure a primary or secondary example of true syphilis. But the true venereal affection of the testicle is connected with those primary symptoms which are not to be mistaken, and moreover is often co-existent with other symptoms equally well ascertained as secondary forms of the venereal disease.

In the commencement and progress of venereal testicle it is not very unlike some other affections of the gland; at least as far as the local symptoms go. Its enlargement is very gradual, and not much attended to by the patient, as throughout it is attended with very little pain. Almost in every case of this kind, when a surgeon is consulted, he will find on examination that the body of the testicle and the epididymis are become confounded with each other; that they form but one swelling. How soon this happens after the gland takes on this disease I do not know, but feel the parts as early as you may, you will find the depression, naturally existing between these two components of the organ, filled up, and it is a character of much use in discriminating the true nature of the case. The swelling has a uniform surface, and, as well as the degree of hardness, hardly you would say differs much from the sound condition of the gland. Sometimes it has considerable firmness and tenderness on pressure. The spermatic cord generally becomes thickened, either for a short distance above its insertion, or it may be even up to the external ring, but it is of the natural softness. The skin of the scro-

tum may remain some time natural, but it at length becomes of a dull red colour, somewhat thickened, and an appearance of desquamation of the cuticle, particularly on the side of the affected testicle. If the disease is allowed to go on unattended to, the scrotum becomes inflamed, ulcerates, and a fungous protrudes from the opening. I cannot call to my recollection that I ever saw a case of this kind unattended with some other secondary symptom; generally it is either the papular or scaly eruption; nor do I remember having seen a case of it where mercury had not been exhibited previously for the primary complaint, but I have no doubt but that it might, as I have seen many such cases where the condition of the patients could not warrant the supposition that the mercury had been given in excess, or with a decided injurious effect on the system generally. This form of the complaint seems simply a disease of deposition, — that the structure of the gland is uninjured, and on its restoration with the aid of mercury, is fully as equal to the discharge of its proper functions as it ever had been.

Now, venereal testicle is met with under different and much worse circumstances than that I have described. You are called on, suppose, to visit a man who had had a chancre some time previously, and for which he had taken mercury, either in too small or too large quantities, or in some injudicious manner, either as regarded the form in which it was given, or want of due attention to some peculiarities of the patient's constitution; well, you find his health quite broken down; all desire for food is gone; he is worn to a skeleton, and unable to use the least exertion; he has a constant thirst upon him; he sweats, and at night particularly, profusely; his pulse is rapid, feeble, and small, and he has altogether a look of indescribable misery and exhaustion. Well, you examine him more closely, and you see here and there over his body detached spots of eruption; he tells you he had suffered greatly from rheumatism, and that the pains in his limbs were much exasperated when he got warm in bed, and that as those grew a little better, he felt an uneasiness in one of his testicles — which perhaps at last amounted to severe pain. You come to examine the part, and instead of a smooth equal enlargement, such as I before described to you, you feel it irregular on its surface, and instead of the uniform firmness which the first variety conveyed to your touch, you may find a softness like that of fluctuation in one or two spots. In this case, too, you can feel the distinction between the epididymis and body of the testicle as readily as you would in its sound condition. I have not seen this second variety attain so large a size as the first.

I cannot consider this swelling of the testicle accompanied with those severe constitutional symptoms as a pure case of venereal testicle; it is one so greatly modified by constitutional causes that they do not seem the same disease; they have, however, beyond a doubt the same origin, nor do they differ more than other secondary venereal affections do, and many other diseases will be found to alter these characters under circumstances, although arising from the same cause.

Now, although these are the characters of venereal testicle, as far as I have seen, yet I am not at all sure that any symptoms derived from the testicle alone would satisfy my mind as to the nature of the affection, and indeed so closely do they resemble some enlargements of the gland, decidedly not venereal, some of which demand the exhibition of mercury for their cure, that there is certainly a great want of unanimity of opinion among surgeons as to there being such a thing as a real venereal affection of the testicle at all. Some give it one name, and some another. Some say it is a mercurial affection; that is, one caused by an improper course of mercury; but one thing is certain as to this point, which is observable in relation to some other secondary symptoms, that mercury given for an affection of the liver, or in particular stages of certain inflammations, or for any other of the numerous diseases for which mercury is given in every form and dose, has not been known to cause this peculiar disease of the testicle, no more than some other appearances about which doubts have been started as to their venereal, or mercurial, or mixed natures. It is only when given for the cure of the venereal disease, that mercury produces those anomalous diseases.

What might this venereal testicle be confounded with? There is an enlargement which comes on gradually and without pain, commonly called scrofulous disease of the testicle, and which might be mistaken with the mild form of the disease we are considering. The period of life at which it appears may give some colouring to the mistake, that is, from about the age of twenty to thirty-five or forty years; but the scrofulous enlargement takes a longer time forming, and will attain a larger size than the venereal one ordinarily does; it is rather flattened at the sides, but there is this great distinction between the two, that the epididymis and the body of the gland is not obliterated, from the beginning to the end of the scrofulous affection. There is no pain during the progress of this last, and examination has shown that it begins either in an abscess in the very centre of the gland, or in cysts containing a cheesy matter, while no alteration can be detected in the structure of the other.

An abscess sometimes forms in the substance of the testicle of the acute kind, the result of a hurt or some undistinguishable cause, and from the quickness of its progress is attended with extremely severe pain, and so much does the patient suffer that, although little or nothing may appear externally, the patient will get into a hectic state, if nothing effectual is done for his relief — but almost immediately that an incision, of a size sufficient to give exit to the matter, is made into the testicle, all the bad symptoms subside, and the patient quickly recovers.

A cancerous affection of the testicle sometimes comes on at an early period of life, considering the tendency of that disease to appear at rather an advanced age; very early in its accession it might perhaps be mistaken for venereal testicle, although, I believe, the mistake is oftener made of supposing that which is really venereal to be a scirrhus, and I am afraid a testicle has been sacrificed before now,

without necessity, from this error; but very soon the distinctions between the two become too obvious for any serious mistake; the hardness of a scirrhus testicle is that of a stone, and even from this it could be known from the venereal; the difference in their weight, when poised in the hand, is quite manifest; there is no other morbid production could be confounded with scirrhus, if the situation permits of this single test—the pain in the part, and darting into the loins; the hardness as well as fulness of the cord when affected; the look of the patient, &c., if carefully attended to, will enable you to come to a true diagnosis at once.

There are anomalous enlargements of the testicle from various causes that could perhaps raise doubts as to their being venereal or not, but the history of the case, and above all, the presence of other venereal symptoms, will warrant the use of mercury in any of them.

There is nothing peculiar in the treatment of venereal swelled testicle; mercury must be given in full doses in the simple mild case, and even if a fungous has sprung out and is of a large size, you will not have occasion to employ any particular topical application to it, for when salivation is effected the fungous gradually shrinks away, or should there be none, the first mark of improvement will be the line of separation between the body and epididymis becoming obvious to the touch, and as the cure goes on the swelling subsides and the gland is left uninjured as to its functions or appearance.

Now, in the severe form of venereal testicle you will have a very different, and often an extremely difficult task to accomplish; for here is a case where the patient is reduced to the lowest ebb by previous mistreatment, or a constitution naturally bad; where the local disease, as well as the system generally, is influenced by complications that will in some way or other baffle any treatment, and where, from the slender hopes of a successful issue, you would almost resolve to leave the patient to his fate; in fact, very few indeed of such cases terminate well at all; and those whose lives may be saved recover with the loss of the testicle. I do not mean to say that hectic symptoms alone will much interfere with the ordinary treatment of the case, for that fever subsides with the other symptoms when the mouth becomes affected, and indeed it is a very frequent attendant on most cases of pure venereal testicle, in a greater or less degree; but in the other instance you will first have to use all your caution and judgment to improve the general health, and if you are successful in your efforts, then to introduce mercury in very *small* doses, and to watch its effect with the most unremitting diligence; you will combine with it sarsaparilla, either in the common form of decoction, or boiled with sufficient lean beef to make a strong soup. The other particulars of treatment must be regulated by the necessities of each individual case. Sometimes a little fluid collects in the tunica vaginalis of a venereal testicle, but as the improvement goes on in other respects this fluid will be absorbed; there will rarely be any occasion to let it out with a lancet,

The swelling may not be entirely removed for a considerable time, but I have not, in every instance, thought it necessary to continue the mercury until the gland had been reduced to its natural size, if the other symptoms were cured, and the slight enlargement alone remained. The patient may feel uneasiness at finding a hard knot remaining in the epididymis, supposing that as long as anything unusual can be felt about the part that he cannot be quite cured, or that something will be wrong touching the proper action of the part; but there is no ground for this apprehension; the knot may remain for many years after the disease itself is cured, or for life, and a protracted course of mercury would not only be unnecessary and injurious to the general system, but would, in all probability, be found of no service whatever for removing the little tumour; it must be left to time. It will sometimes be found useful to have a mercurial liniment rubbed on the scrotum.

You are aware that mercury is doing its duty properly in a case of venereal swelled testicle by finding the appetite and strength of the patient improving; and that he is gathering a little flesh; in fact, by the disappearance of the hectic symptoms; you will also soon be able to feel the distinction between the body of the testicle and the epididymis becoming every day more distinct; you will also see any eruption that may have accompanied the enlargement of the testicle rapidly fading away. Should both testicles have been engaged in this affection it makes no difference in the treatment, nor the time necessary to perfect a cure. Indeed this form of secondary syphilis yields very readily to mercury, where circumstances permit our using it with sufficient freedom.

*Nodes.* — The swelling of bones called nodes may come on from many causes besides the venereal disease, and so little is the mere local appearance influenced by the cause producing it, so few and indistinct are the landmarks by which a diagnosis can be obtained, that there is no form of syphilis less to be trusted, or in which your treatment assumes so frequently an experimental character. Venereal nodes generally attack those bones which are thinnest covered by soft parts, such as the shin, the edge of the ulna, or olecranon process, the bones of the head, &c.; they will invade the large bones, as the femur or tibia, or the small ones, as those of the fingers and toes; and I may remark that when these small bones, such as those of the carpus, become affected, they are peculiarly hard to manage. Sometimes the soft or cancellated structure of the bone is the seat of the disease, but more frequently it is the hard structure that is affected. Sometimes the formation of a node is attended with very severe pain in the part, and preceded by very harassing attacks like rheumatism; indeed so like that until we have something local to enlighten us, it is impossible, I believe, to distinguish between them and the disease they are usually first conceived to be, particularly by the patient himself. Sometimes, on the other hand, there will be very little uneasiness in the part, your patient

perhaps is telling of the bad state of his health generally, and you observe him putting down his hand and rubbing his shin every now and then, but seeming half unconscious of what he is doing, for he may let you go away without alluding to his leg unless you ask him, and then he may say that he has felt a little aching about the shin-bone, but it gave him so little trouble he did not think it worth mentioning, although the place appears to him a little swollen.

Nodes of all kinds, properly so called, commence by an inflammatory condition of the periosteum and of the bone; a substance resembling cartilage is then secreted between the membrane and the part it covers; this, after some time, becomes vascular, and is converted into bone; there is little or no difference in the way this is effected from the natural formation of bone in early life, except in the total absence of pain in the one; the cartilage that is deposited is adherent to the bone and periosteum, and if the tumour has existed many years the new formation will be found completely identified with the other, the line of demarcation being hardly perceptible, and the cancelli of the one communicating with those of the other; the way in which the tumour continues to enlarge is by the successive depositions of cartilage between the tumour and periosteum, and again these converted into bone. The pain of a node during its formation is sometimes of the acute kind, but more generally a heavy dull sickening uneasiness; and like the preceding pains in the limbs, is worse at night when the patient gets warm in bed, but this character is far from being peculiar to venereal cases, although some writers appear to lay an undue stress on it.

The progress of nodes is generally slow; they may remain for eight or nine months, or longer, without any perceptible alteration in their sensible characters, and finally be absorbed by a process as slow as was that of their formation; sometimes they will remain swollen for life, but neither be painful nor discoloured; nothing but the swelling. Even this, however, was once a very serious matter in the opinion of such patients, when it was the fashion to wear tight pantaloons, or to exhibit the legs in knee-breeches and silk stockings in the evening, and such deformities were in those times more frequent than at the present day, in consequence of the injudicious manner in which mercury was exhibited; many nodes still occur in those who have been subjected to repeated but irregular courses of mercury, so many indeed, that some suppose that they are attributable solely to this cause in every instance, which is not the fact, if we except, as perhaps we should, those cases of nodes which attack the cancellated parts of a bone in preference to the harder parts, or in which the small bones, such as those of the carpus and tarsus, which are comparatively light and spongy in their structure; and where the health in general has fallen into that state denominated the mercurial cachexy.

Although nodes do frequently remain in this quiescent state, it is always so: for they may go on to the formation of matter.

Now, from the structure of the parts one might reasonably infer, if even experience did not teach us, that if the formation of the tumour itself had been attended with pain, but little mitigation could be expected on suppuration taking place, and that we should, in many instances, want the feel of fluctuation altogether until the matter had arrived just beneath the integuments; but in more chronic cases where there had been little or no pain from the beginning, there may be none of what could be called pain during the suppurating stage. The matter in these cases is rarely of a healthy description; it is that kind which is discharged from a carious bone without regard to its origin.

After these abscesses burst or are punctured by the surgeon, what course does the case take? It may continue to discharge for some time, until at length, after the integuments have ulcerated to a sufficient extent, bits of bone begin to come away; in some instances the exfoliation will be of some size and thickness, and on its escape granulations will arise from the surface of the bone, they will form adhesions to the parts about as far as they can, and those granulations which remain exposed will eventually cicatrize with as little trouble as a simple granulating ulcer in the soft parts. Sometimes when the matter is discharged from the suppurating node, and that the bone below is fairly exposed to our inspection for some extent, all we see is its surface roughened, it soon becomes covered with little cavities discharging matter for a time, until at last we see granulations spring up from the bottom of them, and from the whole surface of the exposed bone, which, as they accumulate, conceal the bone entirely, soon skin over; and this without any exfoliation that one is able to perceive.

I stated to you that swellings often form over bones unconnected with lues, which might, however, readily enough be confounded with venereal nodes, such as the ordinary periostitis. Now, is there any mode of distinguishing the nature of these cases? It would be very useful if there was, but the great difficulty experienced in the diagnosis can only be satisfactorily removed by reference to the history of the case, or the co-existence of other better defined symptoms which might be present. There is one character that might assist you in forming an opinion; I think a venereal node takes up less of the *length* of the bone than other swellings or nodes; but although this has often struck me, yet I confess the difference is not by any means so well marked a distinction that perfect reliance could be placed on it; it is, however, one guide in deciding on these cases; this greater roundness and the history may serve to ground an opinion on, but nothing else will. There will be a nodose state of bones where there is nothing venereal, and it will be very necessary to distinguish between these for the proper treatment, for the one would not only do the other no good, but much harm; besides that the non-venereal swelling sometimes occupies the whole length of the bone, forming it into one general curve from end to end ap-

parently ; there are more of the long bones affected at once with this than we ever see in a true case of lues.

Without reference to the patient's constitution, there are some cases of venereal nodes that yield more readily to our treatment than others. When the tumour is seated in the solid part of the bone, as in the centre of the tibia, it will much more readily yield to the influence of medicine, and give less trouble to both patient and surgeon, than when the cellular structure, as the head of the tibia, is engaged. Why, if you were to give mercury for a node in the cancellated structure, or in the small bones of the wrist or tarsus in the same doses and with the same boldness that you might, or ought to adopt in venereal nodes elsewhere, you would be likely to do the most serious mischief almost before you had an idea that anything was going wrong, and when it would be impossible to bring things back to their original state by retracing your steps.

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## LECTURE XLIX.

The venereal disease (*continued*). — Nodes (*continued*). — Affections of joints — Swellings on tendons — Paronychia — Syphilis infantum — Diseases in infants resembling syphilis — Treatment of venereal disease in infants. — Conclusion.

VENEREAL nodes are to be treated just like any other symptom of the disease, in general, with mercury ; there are particular instances, like what I have just alluded to, in which we must vary the *mode* in which it is to be exhibited. Suppose a node has formed with a sensible fluctuation, the skin over it discoloured, and its course not marked with much constitutional disturbance — why there, mercury is your remedy without hesitation or delay ; but, if it has been accompanied with fever, or in other words, if it has caused fever, you must be aware, from all I have hitherto said on the subject, that mercury could not be administered with propriety ; what you are to do where pain and fever accompanies, is to cut down on the node — take measures to remove the fever, and *then* give mercury. Now, nodes in the soft structures of bones are to be treated with mercury also, but it must be stolen in the most cautious manner, in small doses, while if in the hard parts, you give the medicine in full doses. In some cases of venereal nodes the prompt exhibition of mercury will mitigate pain and bring the parts quickly to a healthy state ; but, as I have had occasion to remark, certain constitutions receive the sanatory influence of mercury very sluggishly, and you are required to do something for the patient's relief in the interim, and the most speedy and efficacious plan you can adopt is a quick succession of blisters to the part. Neither mercury nor anything else that you try will dissipate the swelling of some nodes, but they will relieve all the urgent symptoms, and that is as much as you can hope for.

You will find it proposed, where there is obviously a fluid, to cut down and give it exit; but I think from what I have seen of this practice, that it is not serviceable — it only subjects the patient to tedious suppurations and exfoliations, and is productive of no good whatever. In the majority of such cases, mercury will cause absorption of the matter, and prevent all the mischances that may arise from the exposure of a part, previously too much disposed to an unhealthy action. There is great temptation in many of these cases to use the abscess lancet; the node, we will say of the frontal bone, has long resisted mercury — a chronic suppuration has taken place — the skin over it is very thin, although, as in many other chronic collections of matter, it is not discoloured, or the distension may have reddened it; yet mercury and blistering may remove all this; while on the other hand, if you let out the matter as gently and cautiously as possible, you will have a very tedious ulcer to manage, and when you at last get it healed, there remains a depression for life, so deep as to disfigure the patient more than you could expect. I do really think that, independently of the troublesome caries and exfoliations, the bone sinks much deeper where it has been exposed, than where it is not meddled with.

With respect to these nodes on the forehead, there will often be observed peculiarities in their course differing from nodes in most other situations. A man will tell you that he cannot rest with the incessant pains in his head, that he has the sensation as if something was darting through his brain — you examine his head, and you see the skin in one part discoloured, and a swelling there. Now, this appearance will creep on from one part to another, and in every part it has left, there remains a depression which it has left behind it. I would again impress on you the utility of blistering over a node to remove the pain; as soon as ever you can get one blister healed apply another — it really sometimes acts like a charm. The treatment of nodes in general, is often very discouraging; do what you will with them, after you have ceased your attendance, leaving your patient to all appearance quite well out of your hands, the chances are, that he will return to you in three months time with the same symptoms, to undergo a repetition of the same treatment.

There is one affection of the forehead differing very much from what I have described, the nature of which I do not very well understand, but of this I am quite sure, it is not venereal, although it might be supposed to be so — it is this — you feel an irregularity of the frontal bone, but it is caused by knobs and not depression, as in the other case, from which it differs likewise, in not being attended with pain; the patient will tell you there was a lump in a particular spot which he points out, on yesterday, but it is now gone; you examine the part, and you feel nothing there; the next day there will be another one somewhere else, and, in a day or so more, it will have disappeared like the preceding — what are you to do with this case? all it requires is sarsaparilla and country air, — neither this, nor the preceding case is venereal.

Those who place the venereal eruptions among the exanthematous diseases, consider the fever that precedes them as a common exanthematous fever, but if a man is getting a venereal node, or a venereal affection of his testicle, there will be fever and depression of spirits over him for a fortnight before their appearance, just as there would be before an eruption; it might be called the secondary venereal fever, for it exhibits the same characters whatever may be the secondary symptom of which it is the precursor. In exhibiting mercury for venereal affections of the bones of the carpus, or the heads of the long bones, you should combine sarsaparilla, or bark, or the mineral acids, as may seem expedient in each particular case, for there is scarcely one of them in which the state of the constitution will not require such remedial measures. Now, the head of the fibula, and the olecranon process, are not unfrequently the seat of nodes, and where there is really an enlargement of these parts, it is unquestionably a true secondary venereal symptom; but sometimes you will fancy these parts, or the skin, or the edge of the ulna, is about to become affected with a node where no such thing is to happen; the patient feels the head of the fibula, suppose, very tender to the touch, and there is a general tenderness along the whole course of the bone, but no swelling; — well, after being in this state some time, a crop of venereal eruption will come out, and presently, the uneasiness which had been in the bone is gone.

The *joints* are sometimes affected with secondary syphilis, and will closely simulate diseases of a very different nature. I mentioned one such venereal affection of the knee-joint, but other articulations, as the elbow and hip, are also liable. A patient sends for you, and complains to you of a general derangement of his health, and indeed his appearance would have told enough to prove his miserable condition; he mentions his having a deep-seated pain in one of his limbs in particular, extending from the hip to the knee; and that he can scarcely support the weight of his body on that limb; — you examine it, and you find it a little wasted, but you *see* nothing more the matter; — you examine the buttock of the affected side, and you observe the nates to exhibit precisely the appearance you would expect in the first stage of *morbis coxæ*. On inquiry, you learn that he had been subjected to two or three courses of mercury, one after the other, for venereal complaints, but that from the first he had never felt himself free from one annoyance or another, although they were relieved perhaps by his taking a little more mercury. If you now carefully examine the femur with your hands, you discover a node on the front of the bone, about its lower part. Now, this is a case where all your skill will be required, in restoring the man's health, and removing the venereal taint with mercury, and other such measures as I have advised you to employ in similar states of the constitution, brought on by the joint agency of lues and wrong mercurial action. In fact, in many such cases as this, general measures, such as diet, pure air, &c., will be your principal instruments, and mercury, if necessary at all, must be only considered in the light of an

accessory one, and one that may require great caution, as to the tendencies it shall exhibit for good or ill; — no general rule will apply to such cases. Effusions into the synovial membranes of the knee, elbow, or other joints, come under the same class of doubtful symptoms of secondary syphilis, in which you cannot say positively how much an injudicious use or abuse of mercury may not be the agent of the mischief. It is unquestionable that mercury will cause many of those perplexing cases, but the most remarkable circumstance that must strike every practical man, in connection with this subject, is, that we never observe them follow the most protracted use of the drug for any other disease than the venereal. Nodes on the small bones, as the fingers, are always very troublesome, and indicate a bad tendency — do not on any account open them — if you do, the same consequences as follow opening nodes on the forehead will happen here — namely, that all the coverings of the bone will slough, and you do not know where the sloughing will end.

There is such a thing as a venereal paronychia — I am convinced there is, although it is denied by Pearson; there is a fulness at the end of the finger, surrounded by a copper-coloured redness; it will get well with mercury, and with nothing else. Soft swellings of the tendons are in their nature like the nodes on the small bones — and if you open them the cavity will extend itself by sloughing, and extend sometimes half the length of the leg; if these swellings open of themselves they will often heal pretty quietly; you may assist their dispersion by blisters, but I think the best thing you can do is to leave them to themselves.

Just when mercury is about to affect the constitution, you will often find it bring on a dysenteric affection of the bowels which is easily managed; you stop the mercury, and relieve the dysentery with opium and small doses of castor oil; this mercurial dysentery is the surest test that the medicine is taking effect on the constitution; when the dysentery ceases you may resume the mercury with more confidence, for it rarely induces a second bowel attack. If your patient be of a delicate constitution, and the weather permit, great advantage will be obtained by letting him go out into the open air daily, for a couple of hours, — but do not mistake me, — I am not by any means an advocate for walking cures — for telling every patient taking mercury to go about the streets: on the contrary, I think that a strong healthy man should be confined within doors, and only those whom confinement, under any circumstances, would probably injure, are those to whom my remark would apply; besides letting such a man go out, I would give him bark, for such are sometimes disposed to run into hectic. There is always a fever attending a course of mercury, and when you get your delicate patient over this, you will often be able to throw in a good deal without injury. Sarsaparilla is an useful medicine during a mercurial course for any form of syphilis; I do believe that sarsaparilla itself possesses influence over the venereal disease in relieving and removing its lighter symptoms, and in making those symptoms

assume a milder form when they return; after a patient's mouth has been made sore with mercury, it will, therefore, be useful to join the sarsaparilla with it, and if on soup in the cases I have suggested, you direct this sarsaparilla soup to be made in this way — to three ounces of sarsaparilla, sliced, add three pints of water; let them simmer on a slow fire until reduced to two pints; take out the root, bruise it, and return it into the water with half a chicken, or half a pound of raw beef without fat; boil them for an hour slowly, and pour off the soup for use.

I SHALL now draw your attention to some facts in relation to the venereal disease as it exists in infants, and it is impossible to avoid making its consideration separately, because in those subjects it presents some peculiar features to distinguish it from others, and because of some remarkable peculiarities in the manner in which the infection is received. I mentioned on other occasions my conviction that a secondary venereal disease is capable of originating primary venereal symptoms in another person; of this my practice has supplied me with decisive proofs: but we come now to a much more difficult matter to be understood, namely, the possibility of a child being born with unequivocal venereal symptoms, the parents of which may not have a single apparent symptom, either primary or secondary, of the venereal disease since, or for some time previously to, their marriage. Before I go farther into this, I should wish to state another equally, or perhaps even more extraordinary circumstance, but one of which experience has afforded me some satisfactory instances in proof, viz., that a man who has himself no visible venereal symptom can give the disease to a female, and that this woman shall exhibit the proofs of contamination in a *secondary* form, and without her necessarily ever having had any primary symptom at all. I had great difficulty in allowing myself to be convinced of the possibility of so singular a deviation from every known principle on which the propagation of the disease was supposed to depend, and the laws laid down by all observers as to the course followed by the disease after it had been taken. It is true, as I believe I before remarked, that cases had come under my notice where a train of secondary symptoms had come on, in the usual course of succession, in men who had not been conscious that they had had a chancre, nor in whom was a minute and careful examination able to detect a trace of a primary venereal ulcer anywhere, but a small chancre might be supposed to have formed, and to have healed without attracting the patient's attention, who, from complete confidence in the female with whom he had had sexual intercourse, or from a naturally careless and sluggish habit, never thought of looking for such a thing, but this could not be the case in some examples I witnessed. I have attended persons in whose veracity the most entire confidence could be placed — men who would have endured any infliction sooner than have knowingly given such a disease to the female, and yet it so happened, not in one instance alone, but

in several that came under my care, that persons who got married, say in six, nine, or twelve months after what they and their medical attendants considered a perfect cure of a chancre, who, during all that time, were in apparent good health, at least as regarded any venereal complaint, have yet produced a secondary disease in their wives. Those who from early education, or habit of considering the disease, will object, that there could exist no positive proof that a female, so affected, had not come by the disease without the agency of her husband, but strange as the position I have assumed may be, I consider it much more likely to be true, than any explanation founded on a general distrust of the conduct of some of the females whom I have had under my care.\*

Now, the difficulties of reconciling those cases to preconceived theories, or if I might call them cherished prejudices, do not end here; for another startling fact, equally well authenticated, is this — that a man apparently cured of pox, and marrying a female of unblemished character, will get a child which shall be born with the venereal disease, although neither of the parents may exhibit a single trace of the disease themselves during the whole period of utero-gestation; and farther, that two or three children may be born to these parents in due succession, and still the father and mother remain to all appearance untainted.

An infant may come into the world with the evidences of the venereal disease fully upon it, — or it may be still-born with these evidences, — or it may be born apparently healthy, and at some subsequent period the symptoms of infantile syphilis shall appear. When the symptoms are developed *in utero*, the fœtus rarely comes to maturity; the mother takes her labour in the seventh or eighth month, and the infant has the appearance of having been dead some time. Two or three repetitions of this occurrence may follow in successive years, and the real cause be overlooked from the apparently healthy condition of the parents, or at least from the absence of any well marked and decided symptoms of syphilis about them. Suppose

\* I beg to refer to a paper by an anonymous writer in the 4th volume of the Transactions of the King and Queen's College of Physicians, in which the question is proposed, — What are the cause, and means of prevention, of certain cases of premature labour, — where the child is still-born, and where the female is liable to several successive recurrences? and to an interesting paper, in the same volume, by the late Dr. Beatty, an eminent accoucheur in this city, who, from his own practice, was able to answer these questions satisfactorily — that the occurrence was owing to latent syphilis, and the strong disposition to future catastrophes of the kind could be removed by a course of mercury, and the almost extinct hopes of having living offspring realized. The late Mr. Todd and Dr. Colles saw some of the cases given in proof of this opinion, and considered them valid. I have not found any announcement of this very important fact, previously to the above referred to paper by Dr. Beatty. In connection with this in-lying of syphilis in an apparently healthy couple, I may venture to add, that I have noted cases which convince myself at least, that such a condition of the system can prevent conception altogether without actual physical impotency; and that if, for any purpose, the parties be subjected to a course of mercury, conception will probably follow at no remote period.—*Ed. of Lect.*

the child to be born alive with venereal symptoms — it presents a miserable picture of extreme emaciation ; with drawn-in features, and the skin all over the body shrivelled and covered, particularly about the anus, with a copper-coloured eruption. In this state it may live a few days, but frequently it survives but a few hours.

When the child at its birth offers nothing in its appearance out of the common course, it may continue in tolerable health for some weeks, but sooner or later there appear those unequivocal signs of a venereal taint, viz., the copper-coloured patches about the anus, perhaps extending some way down the limbs, and if a male, generally affecting the scrotum. About the same time a remarkable change takes place in the voice ; it is no longer like the cry of an infant, but a hoarse, broken sound, which once heard is not likely to be mistaken ; something resembling it accompanies certain bad affections of the throat, and frequently the throat and inside of the mouth are found covered here and there with superficial ulcerations ; there is a discharge from the nose, very liable to harden into crusts, and greatly to obstruct the child's respiration. Sometimes the conjunctiva of one or both eyes becomes inflamed, and although not very severe in other respects, yet pus is formed in small quantity ; wherever the skin forms folds, and is softened, excoriations may occur, and these may degenerate into ulcerated surfaces. As might be expected, a lymphatic gland or two may inflame and suppurate, but it is of a chronic kind, and the ulceration left will also partake of the sluggish character of the preceding inflammation. As such of these symptoms as may present themselves in one of these cases progress, the infant gradually loses flesh ; it becomes more and more restless and uneasy ; its feeble, short cry is constantly heard ; its appetite and sleep go, and at length it dies worn out by suffering.

Now, many of these symptoms are almost peculiar to infancy, and on the other hand it is a remarkable fact that some of the most common secondary venereal symptoms that occur in the adult are not observed in infancy at all, such as ozæna, nodes, &c., nor have even analogous symptoms quite the same characters in both. There does not seem any very regular order of succession in these symptoms ; any one of them may take precedence of the others, or any of them may be altogether absent : the appearance about the anus is, I think, the most constant symptom of the venereal disease witnessed in infants — and they at least are pretty uniform — they present a number of blotches close to each other, and extending, as I before mentioned ; the size of these blotches continues to enlarge a little, if no treatment has been had recourse to ; after some time ulceration takes place ; the ulcers being either superficial, which they are generally at first, or a little depressed, but unlike some other affections occasionally met with in infants about these parts, the surface of the ulcer is never on a higher level than the surrounding skin. Now, there is a disease of the skin called by the country people *button scurvy*, and which is sometimes seen in infants in the same situation in which we find these venereal symptoms, and those might perhaps

be confounded with each other; button scurvy, in exposed situations, is dry on its surface; but if between the nates, or in other situations where they can lie in a fold of the skin, the surface is moist; in this latter condition it is generally found in infants where it could be thought by a careless examination to be syphilitic; indeed, some have considered, without the least reason, this disease to have a venereal origin whenever met with; when we see it in infants, we can distinguish it by the characters of the venereal disease I have given you, and by this — that the button scurvy is unaccompanied by the copper-coloured appearance that always attends the syphilitic case, or by eruptions or other secondary symptoms manifested in infancy, and also that it is raised in the centre.

In a former lecture I expressed to you my firm conviction that the venereal disease may be propagated from secondary as well as primary forms of the disease, and I instanced the facts I witnessed of children born healthy, and of apparently healthy parents, who may never have had the venereal disease at all, becoming contaminated by a wet-nurse, who had only perhaps half a dozen spots of venereal eruption on her body when she began suckling the infant; and that a child born with syphilis was capable of infecting a healthy nurse — I have only to add to this, that I have known a healthy infant become affected by sleeping with a woman who had a venereal eruption, and who did not suckle it at all, and that the child afterwards communicated the disease to a previously healthy nurse. I cannot attempt any explanation of this, but the knowledge of the fact is of importance in many respects, although it should not preclude any possible investigation as to the condition of the parents either at the time, or previously.

Spots of a suspicious character appear about the anus in infants occasionally, and perhaps from their colour alone one might not be able to distinguish them from true symptoms of the venereal disease; as they arise most from some derangement of the alimentary canal, or of the health generally, there may be considerable emaciation, and the features wear the semblance of an old man in miniature, so remarkable in the infant who is really contaminated with the venereal disease; yet if you have patience to watch the progress of this cachectic disease, and in the interim make use of simple treatment to restore the healthy condition of the deranged functions, you will see those doubtful symptoms disappear, quietly. Whether any treatment be used in these kind of cases or not, the infant will not get the *vox rauca* of syphilis, for the throat will not become affected; indeed the voice, in the non-venereal case, will get rather an opposite quality of tone, it will become very weak and treble. There is a superficial and simple kind of ulcer I have noticed about the anus of infants occasionally; I merely mention it as it might be thought a venereal symptom, when perhaps some collateral circumstances, such as the previous character of the child's father, might give a colouring to any unfavourable suspicion; it is of a chronic

nature in its character and progress, and will do very well by gently stimulating topical applications. The same may be said of fissures at the verge of the anus, which are not very unfrequent, and which will sometimes even extend into the gut; but, like the ulcer I have mentioned, it will get well by topical applications, and general constitutional treatment. Of course in any of those cases there will not be a concomitant display of secondary symptoms elsewhere.

Now, how are we to treat the venereal disease in infants? Why, I believe, in a great number of cases, where the disease has not made much progress, and there seems no particular occasion for brisker measures, we accomplish everthing satisfactorily by subjecting the nurse alone to the proper influence of mercury; there can be no doubt at all that the disease has been eradicated from the child through the system of the nurse; but for my own part, seeing no solid objection to giving the infant itself the same medicine, I am in the habit of treating both nurse and child upon the same plan. I have seen a case where the salivation of the nurse alone did not completely cure the infant, and I have heard of other similar cases, and therefore I prefer more security where no risk attends the measures taken to obtain it. The mode of exhibiting mercury to the nurse differs in nothing from the ordinary one, as applied to adults in general. The form and doses I am in the habit of prescribing for infants is either small quantities of mercurial ointment, as five or six grains, to be rubbed in; or one or two grains of blue pill triturated with a little syrup or mucilage, to be given daily: or from an eighth to quarter of a grain of calomel, mixed with sugar; or the hydrargyrum cum creta, which may be laid on the tongue and washed down with a little milk.

For whatever purpose mercury is given in continued doses to infants, you are never to expect the same proofs that it has laid hold on the system as you should desire to see manifested in the adult; — there will be no swelling or ulceration of the gums, no flow of saliva — nothing of the kind — all you can trust to is the improvement in the complaint for which it was administered. Coupled with this peculiarity, you will not have the same apprehensions from the poisonous action of mercury in the infant as in the adult, for some of the most grave consequences arising out of the wrong direction of the medicine, and which I drew your attention to on a former occasion, have never, as far as I know, been observed to occur in infants. It will be prudent to continue the use of mercury for some time after the disappearance of the symptoms, and at this period it will only be necessary to continue the course with the nurse alone.

While the true nature and characters of the venereal disease in infants leave no doubt on the mind of any practical man, it exhibits peculiarities so strongly marked as to require a separate consideration. I stated this to you when entering on this division of the subject, and before I conclude, I will recall, in a few words, those circumstances which appear to me worthy of your most serious attention. In the first place, the venereal symptoms are fewer and less

intricate in infancy ; many circumstances may contribute to this, such as the manner in which the poison is received, the care bestowed on the child, the impossibility of its acting on the quiet progress of the disease by any irregularity in diet, &c., and in this way also we may account for the greater uniformity in its appearance and progress. The disease is taken with much more facility from infants than from others ; in fact, it is almost impossible for those to avoid being contaminated who have the care of the child, or are engaged in tending it in any way ; I have known four or five members of a family, young and old, who merely got it to dry nurse, very speedily become affected with true venereal eruptions, sores on the lips or genital organs, and other symptoms that would yield only to mercury, and this not in one instance, but in several, and this even without the necessary existence of ulceration in the communicant. In fact, I consider syphilis in an infant one of the most contagious diseases with which I am acquainted. I have already mentioned to you that there are some secondary symptoms commonly witnessed in the adult to which infants do not seem at all liable, and I may add that those which bear an analogy to some in the adult scarcely ever undergo the same formidable changes under any treatment, or no treatment, in infants. One other peculiarity in the history of the syphilis infantum, and one of the most singular connected with it, is this ; suppose a child shortly after birth exhibits evidence indicating intra-uterine contamination, — and that the mother herself has never showed any symptom of the venereal disease, she will enjoy a perfect impunity from becoming infected by her own infant, which perhaps she is even suckling, while a healthy young woman employed merely to carry it about, will quickly become diseased, and still more readily if she acts as wet nurse to it.

From all I have said on the subject of the venereal disease you will have seen that I am decidedly in favour of giving mercury for its cure ; this may, in some measure, arise from prejudices carried from my early education, — but I certainly have not seen the disease well cured without this medicine. Army surgeons, who have come to this country from England and the continent, say most confidently that they can cure any form of the venereal disease without mercury ; but all I can say is, that it will not do in Ireland. Let them have their soldiers in Barrack-street ; let them be disordered there, and my word for it, the anti-mercurial plan will fail to cure them. That it has succeeded on the continent, and even in some parts of England, we cannot doubt, but in this city a poxed patient may be cured for a time, but without mercury that cure will not be permanent. It is still a field for controversy, and is certainly one of much interest, and I am free to declare there is not sufficient experience to allow us to decide *yet with certainty* one way or the other.

## NOTE BY THE EDITOR.

HAVING now concluded my record of the series of Lectures on Surgery, delivered in the College School by the late Dr. Colles while I was attached to his classes, it might be as well perhaps if I laid down my pen, and rested satisfied with the many acknowledgments I have received of the only merit to which I could have any pretension in the undertaking; namely, fidelity in the detail of the matter, and a not unsuccessful adherence to the manner of the eminent professor; or I might simply express my sense of the deep responsibility attached to the promulgation of another's opinions and practice, after death had deprived him of the means of explaining or vindicating any point to which there might be a demur. Having attended more than the usual number of his courses, I have been enabled, by collating my MSS., to give a more extended report of them than any single course would have permitted me to do.

I took my notes of Dr. Colles's lectures (as I did of many others when I was a pupil), for the single object of self-improvement, and certainly without the most remote idea of ever seeing them in print; but some time having elapsed since his lamented decease, and seeing no likelihood of the matter being taken up by a more competent person, I accepted the offer of a space in the Medical Press, with the assent of his son, the present Mr. Wm. Colles, to extend the knowledge of a man's opinions, whose great experience, indefatigable clinical research, and quality of mind, must render them valuable to the profession. Medical science is still, and perhaps ever will be to some extent speculative and experimental, as indeed are some of what are considered the purest of the sciences; every new fact therefore is important as a step towards perfection; Dr. Colles not only seemed constantly watchful to prevent the deflecting influence of preconceived theories on his own judgment, but to take every opportunity, in his lectures, to repress the tendency in young minds to premature theorising — a habit that, even in the more mature, has often exerted a sinister influence on practice; how often do we witness a newly-discovered fact destroy an old doctrine. The features of human suffering, as painted by Hippocrates, are instructive after a lapse of more than two thousand years; how few of the theories of even the last century are respected by the present.

There was another inducement to my undertaking the editing of these lectures, in connection with their practical character. Dr. Colles was not exempt from the reproach (a national one, I am sorry to say) of writing but little himself, so that the benefits which the

profession in general might receive from an experience gathered in his connection with one of the largest hospitals in Ireland (Steevens's) for upwards of forty years, and perhaps the most extended private practice in the country, was likely to be lost. The paucity of Irish works, with ample materials and ability, is, in my opinion, even a greater misfortune than would be an excess of publication from which posterity would care to quote but little.

I have to apologise, perhaps, for the few observations of my own which I here and there threw in, in the form of notes — if valueless, they will at least, I trust, do no harm, except it may be to myself.

As a lecturer Dr. Colles was extremely popular; his style and language were simple and fluent, and partook more of a conversational character than of the didactic lessons of a teacher. In referring to writers with the view of strengthening a point by concurrent testimony, or to overturn some absurd reasoning or dangerous practice advocated by some "surgeon," or rather "writer on surgery," as he used to phrase it, his manner was earnest and impressive, and if he considered the point too absurd for serious argument, he indulged sometimes in a peculiar quiet caustic humour scarcely less convincing than a critical analysis, but perhaps in better taste, because more appropriate. I heard a late eminent lecturer once or twice who used to pull a jest into his discourse by the head and shoulders as it were to enliven his hearers, — in Dr. Colles's pleasantries you felt there was an *utility* — that they were worth more than the laugh-current, and when all was over the joke was not remembered without the maxim with which it was incorporated.

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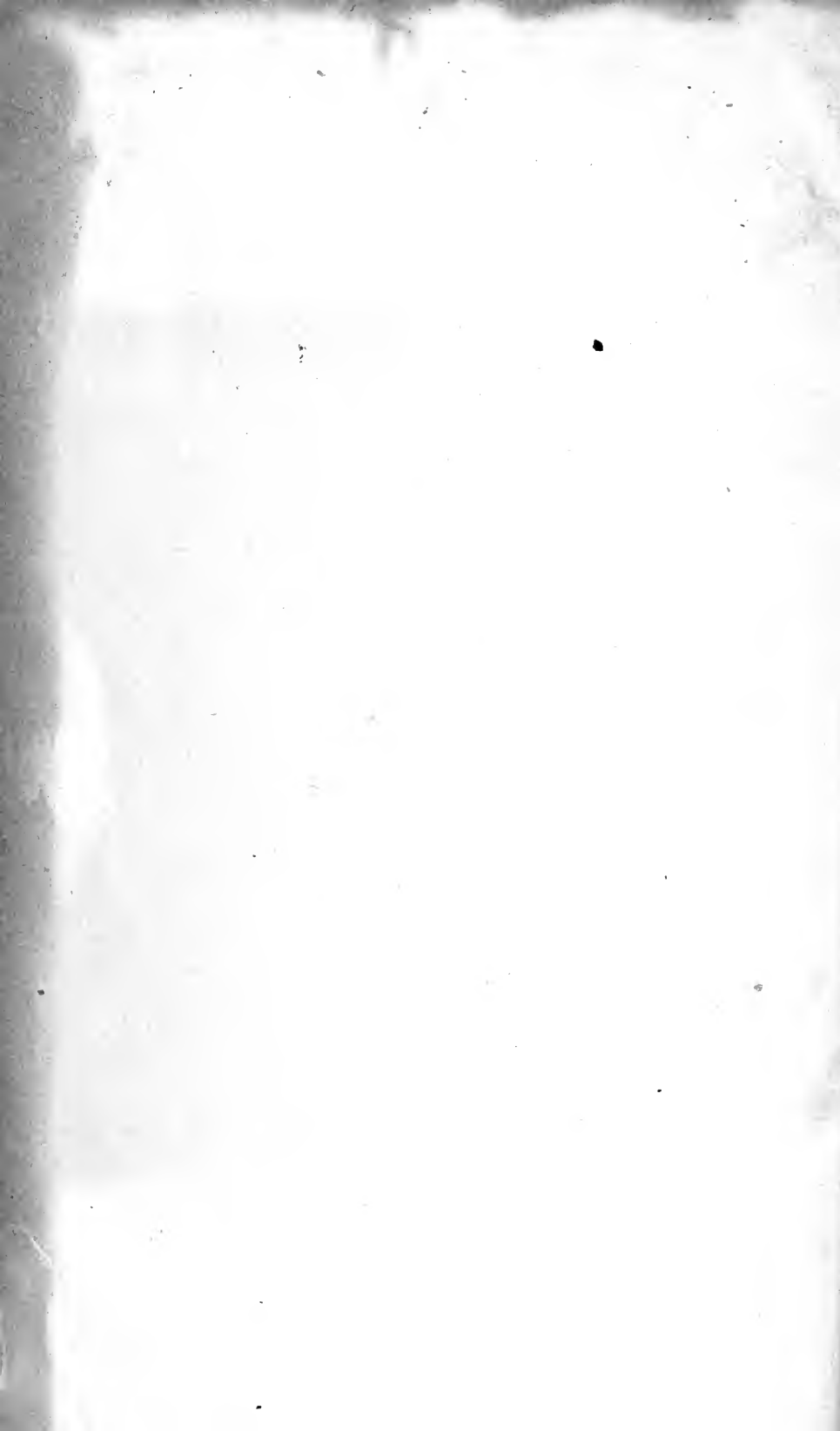
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